

AWA/Deloitte State of the Water Sector Report 2014



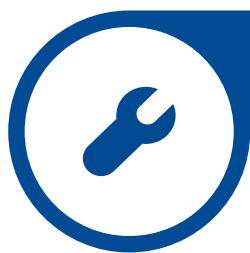


Contents

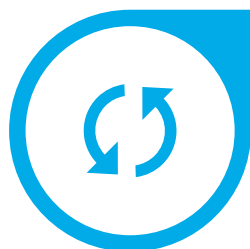
Executive summary	5
About this survey	7
Section 1: <i>The big issues</i>	10
Changes over time	16
Water reform and economic regulation	20
The price of water	26
Coal seam gas	28
Section 2: <i>State reports</i>	30
New South Wales	30
Queensland	32
South Australia	34
Victoria	37
Western Australia	40
Methodology	44
Appendix A: <i>Survey demographics</i>	45
Appendix B: <i>Survey questions and notes on methodology</i>	50
Author contacts details	57



Executive summary



Operational efficiency was articulated by respondents as the top issue facing the water sector



87% agreed that recycled water can be treated and managed to a level that is sufficient for safe potable supply.



70% of respondents think that Coal Seam Gas has a significant to moderate effect on the overall management of ground or surface water.

The Australian Water Association (AWA) and Deloitte are pleased to present the State of the Water Sector Report 2014. The Report is the only one of its kind, reporting on the trends and insights of water sector professionals about their own industry.

The survey results reveal attitudes and behaviours, reporting on how they have changed over the past four years.

The Australian water industry is working well

Those that know the sector best regard it as working well. 64% of respondents thought the sector was 'very sound' and 'quite sound'. Water professionals believe that ensuring sewage is effectively treated and disposed of, and ensuring water supplies are secure are what they are doing best.

The immediate issues

The need to improve operational efficiency has been articulated as the top issue facing the water sector, reflecting the continued concern about the need to control costs and demonstrate value for money within the sector. Water professionals were also focused on the need to place attention on maintaining and augmenting infrastructure, ensuring water supplies are secure and responding to community concern over prices.

What we should worry about for the future

To ensure there is a sound sector in the future, water professionals said that the greatest concern in five years' time was ensuring we have a sustainable water supply. Although the sector believed the security of supply was being managed well, this shows the acknowledgment of the challenges of increasing competing demands, climate change and population growth.

Many options, many solutions

When it comes to water supply options, there are more than you think. The Report shows what the industry, who are the ones developing and delivering on new technologies, believe to be safe supply options for potable use.

- *Dams*: 84% of respondents at least 'somewhat agreed' that dams are an effective method of managing water security within their region and 55% felt that there is scope for more dams to be built. Although, the percentage of respondents that at least 'somewhat agreed' diminished when specifically asked about the need for more 'big dams' in particular regions. The percentage fell 10% in support of 'big dams' in Northern Australia (North-West WA, NT and Far North QLD) (45%) and 18% in Southern Australia (Murray-Darling Basin and South-East Coastal Areas) (37%).
- *Desalination*: An overwhelming number of respondents (96%) believed that desalinated seawater can be treated and managed to a level that is sufficient for safe and reliable potable supply.
- *Recycled water*: 87% agreed that recycled water can be treated and managed to a level that is sufficient for safe potable supply.
- *Urban stormwater*: Around 79% of respondents also believe that urban stormwater can be treated and managed to a level that is sufficient for safe potable supply.

Water prices are about right

Although there is a lot of media hype about consumers' thoughts on water prices, water professionals generally believe water pricing is about right. Even more so than last year.

The emerging issues to tackle

Climate change was identified as posing a significant or moderate risk to the sustainable management of water by 86% of respondents.

For the first time the survey tested views on public private partnerships and found that over 81% of respondents believed there were opportunities for more public private partnerships.

About this survey

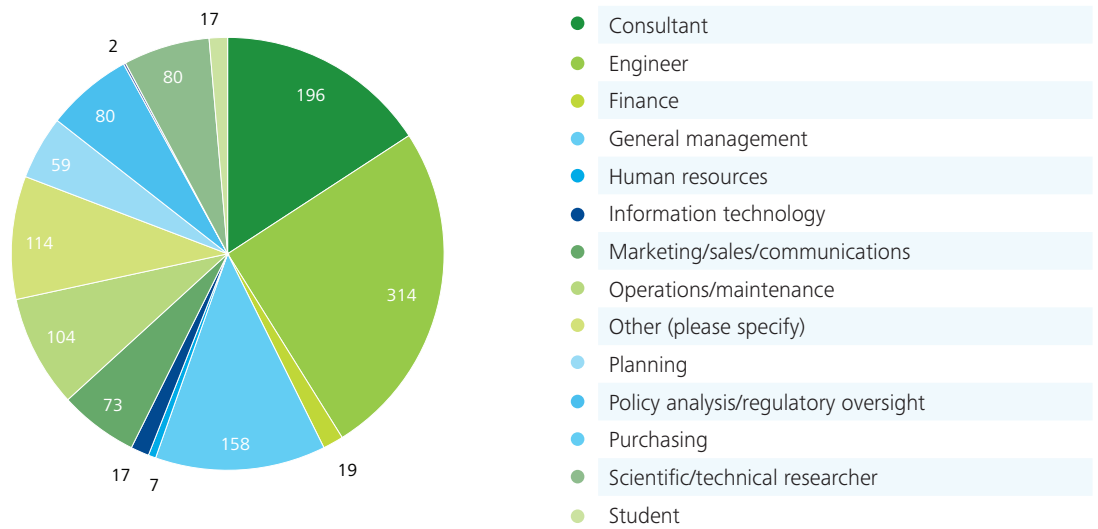
Focusing on water professionals across jurisdictions, occupations and demographics, the survey provides a snapshot of what sector professionals think about their own industry.

The report uses self-reported survey data and was undertaken by Deloitte in April-May 2014. The online survey was circulated to AWA's membership, clients of Deloitte, as well as the broader water sector, with 1162 professionals surveyed in Australia.

Results presented in this report are not intended to meet any particular statistical standard and will be affected by a range of statistical biases – rather they are intended to provide general insights and commentary on the State of the Water Sector and how it is changing over time.

This is the fourth consecutive year of undertaking this research, and where possible, comparisons have been included to show how things have shifted over time.

Figure 1: Occupational spread of participants



Section 1: The big issues



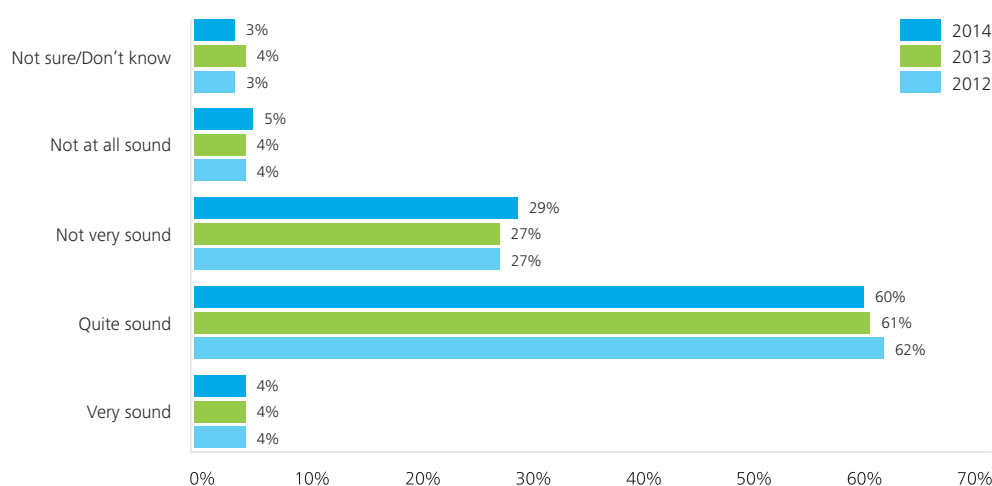
The big issues

This first section of the 2014 Survey uncovers the key issues facing the industry both now and in five years' time. It also looked at which issues were being addressed most or least effectively.

Soundness of the sector

This year's survey results showed that 64% of respondents thought that the sector was 'quite sound' or 'very sound', a 1% drop from 2013. At the same time the number of respondents who rated the sector as 'not very sound' or 'not at all sound' increased to 34% from 31% in 2013.

Figure 2: Soundness of the water sector



The top issues

In 2014 respondents identified the need to improve operational efficiency as the top issue now and ensuring security of supply as the top issue in five years' time.

Improving operational efficiency was identified as one of the three most important issues by 46% of respondents, an increase from 35% that identified it as a key issue in 2013. This option was introduced into the survey for the first time in 2013 and reflected growing concern about the need to control costs and demonstrate value for money within the sector.

Following closely, the next highest priority issue identified was maintaining and augmenting infrastructure, which was ranked as one of the top three issues by 45% of respondents. This was the top issue in 2013 and 2012.

The next three top issues of concern were: ensuring water supplies are secure (39%), responding to community concern over rising prices (37%) and improving the way in which water sector institutions are governed (32%).

There was overlap with the biggest issues now and in five years' time. Ensuring secure water supplies was ranked third by 39% of respondents as a current issue, but was identified as the top issue in five years' time by 41% of respondents.

Maintaining and augmenting infrastructure was also identified as an issue now and in five years' time. However the number of respondents who rank it as a top issue now was 45%, whereas only 37% of respondents believe it will be one of the top three issues in five years.

Mitigating extreme weather event impacts was identified as the third most important issue in five years' time by 34% of respondents, followed by the need to reduce skills shortages, the fourth highest ranked issue by 26% of respondents. Both of these issues were not identified as top priority issues the sector currently faces, which indicates their foreshadowed importance over the next five years.

Top issues of concern

46%

Improving
operational
efficiency

45%

Maintaining
and augmenting
infrastructure

39%

Ensuring
water supplies
are secure

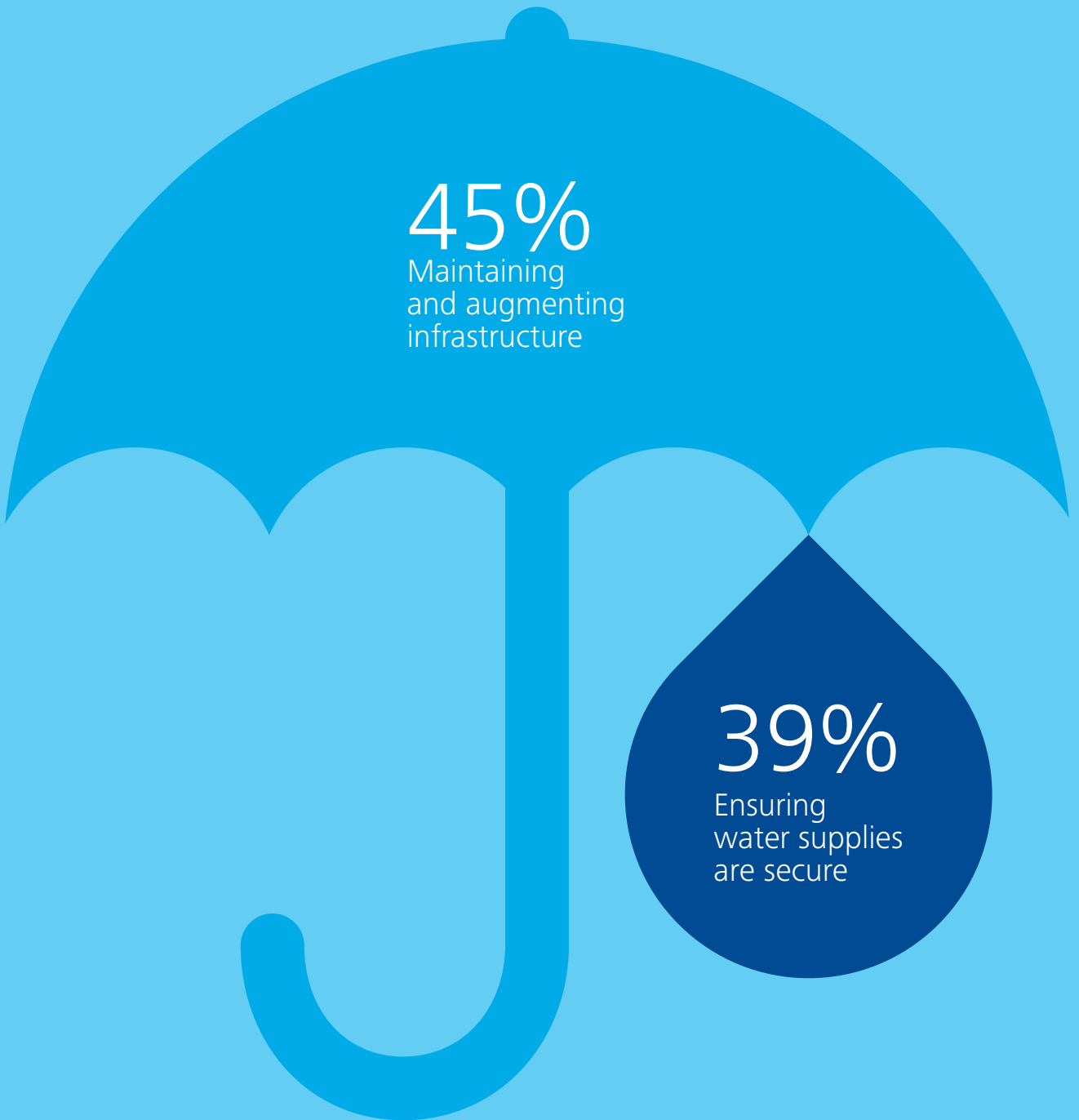
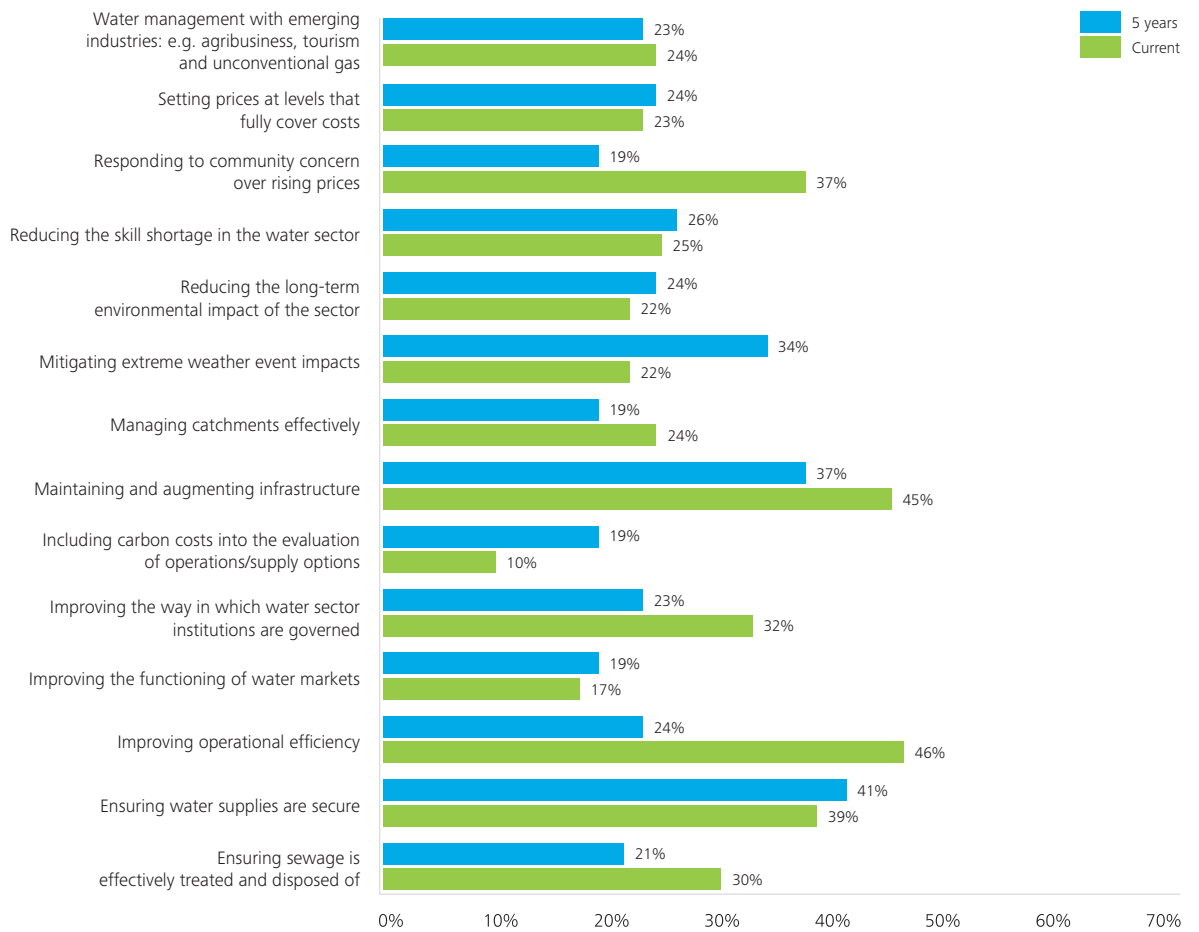


Figure 3: Which three issues do you think are the most important for the water sector?



Most important issues the water sector faces now and in five years' time

Improving operational efficiency

Forty-six percent of respondents identified improving operational efficiency as one of the top three priorities for the water sector. In recent years the sector has invested significantly in assets and staff and there is a key need to focus on improving operational efficiency. Together, the sector must now consider the use of technology and innovation to drive down costs and would benefit from taking a collaborative approach to achieve this outcome. The number of respondents who rated this as one of the top three current issues was 46%, this decreased to 24% who believe it will be a top issue in five years' time.

Maintaining and augmenting infrastructure

Maintaining and augmenting infrastructure was also identified as one of the top issues now and in five years' time. The issue of deteriorating infrastructure in an environment of cost pressures along with the need for increased operational efficiency has meant this is a key concern of the sector. Forty-five percent of respondents rated it as one of the top three issues now, but this decreased to 37% who believe it will be one of the top three issues in five years' time.

Water security and supply

Water security remains top of mind for many working in, or connected to, the water sector. Despite recent wet conditions in most of Australia, and billions of dollars being spent on augmentations, 39% of respondents identified water security as a key issue the sector currently faces. This increased to 41% of respondents who think it will be one of the top three issues in five years' time, which highlights the increasing challenge for the sector in the coming years. Views on this issue differed significantly across jurisdictions. Not surprisingly water security was identified as an issue by 59% of Western Australians, compared to 39% elsewhere.

At a local level, 88% of survey respondents considered water supplies in their region were either 'very' or 'quite secure' and there was general agreement that the sector was addressing this issue well.

In an urban context, the three most important things that respondents indicated could be done to meet water supply requirements are:

- Accessing supplies from innovative sources such as recycling and storm water (69%)
- Curbing the demand for water through education (60%)
- Raise the price of water to reflect its scarcity (35%).

The survey also asked respondents to consider the three key things that could help meet the water requirements of the environment. The top three responses were:

- Improve the efficiency of consumptive uses (e.g. repair/upgrade irrigation systems) (63%)
- Invest more in research to understand the environment's water needs, particularly critical environmental assets (59%)
- Ensure that the environment's high security entitlements are respected (54%).

The survey explored attitudes to four different water sources for differing uses: recycled water, stormwater, desalinated water and dams for potable and non-potable uses.

Concerns about using recycled or storm water as a potable supply source appear to be easing. Most survey respondents (87%) considered that recycled water was suitable for potable use, and most (78%) considered stormwater as suitable, while almost all (96%) considered that desalinated water is a viable option.

These responses provide a guide for future water supply options for both the urban and environmental water users.

Responding to concerns over rising prices

The price of water has increased largely as the cost of new capital investments is being passed on to customers.

The survey has sought respondents' views on whether the price of urban water was too high in all iterations of the Survey since 2012. The number of respondents who thought water prices were too high has remained roughly the same over the past three years at 21%, 27% and 24% in 2012, 2013 and 2014 respectively. The number of respondents who thought prices were too low has also remained roughly the same at 35%, 30% and 32% over the last three years.

Mitigating extreme weather events

Mitigating extreme weather events was identified as a top priority issue for the sector in the next five years by 34% of respondents. This may reflect that current stresses on the sector will be exacerbated by the higher occurrence of extreme weather events as a result of climate change. Climate change was identified as a significant or moderate risk to the sustainable management of water by 86% of respondents.

To address climate change the majority of respondents believed the water sector should

- Focus on diversifying sources of water supply (67%)
- Ensure that systems can withstand extreme weather and events such as fire or flood (63%)
- Ensure asset management strategies account for longer term changes (57%).

Reducing skills shortages

The skills shortage in Australia's water industry is a key constraint on growth and change in the sector. Approximately 25% of respondents think it is an issue now and 26% think it will be ranked fourth as one of the top three issues in five years' time.

Changes
over time

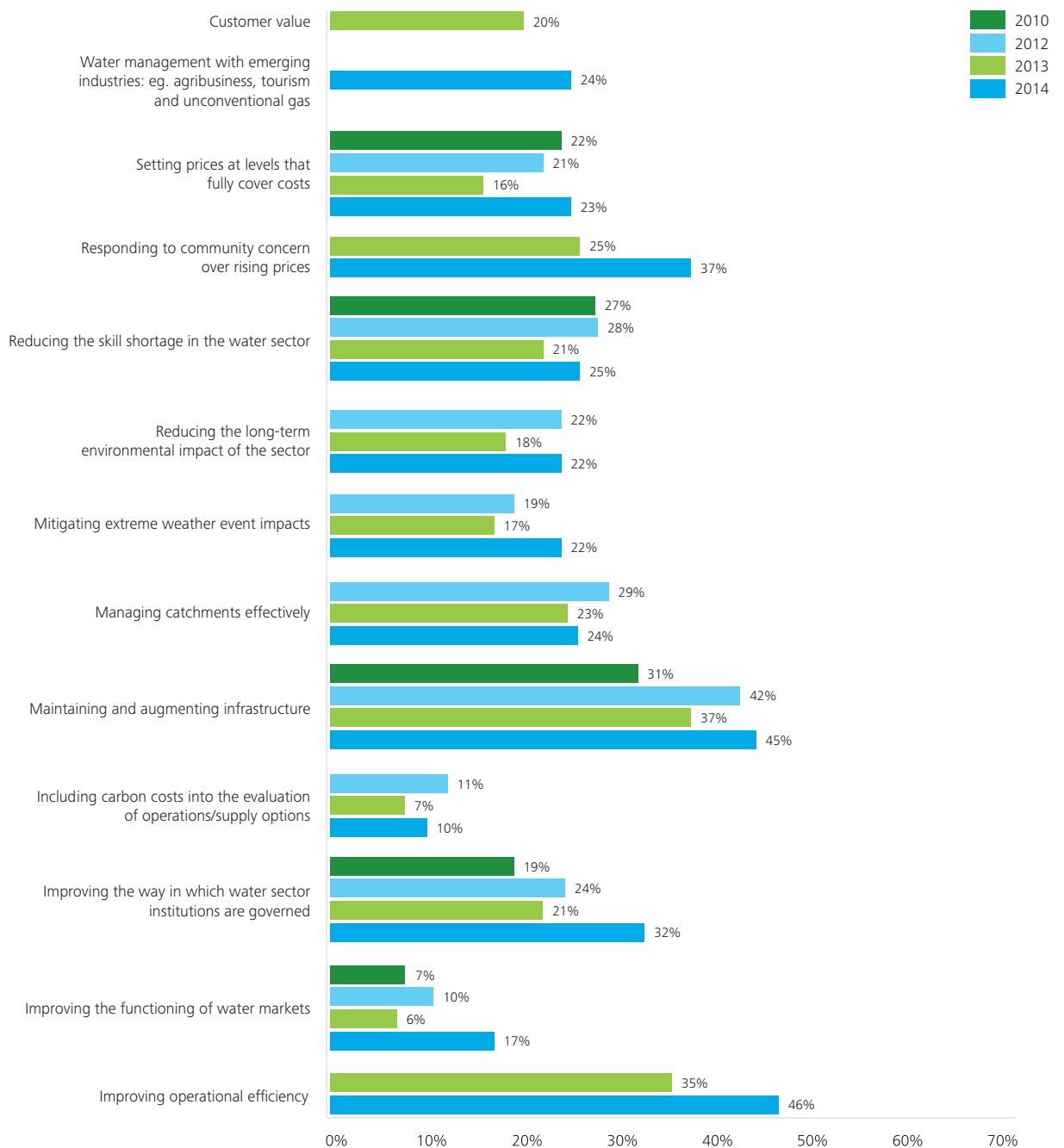


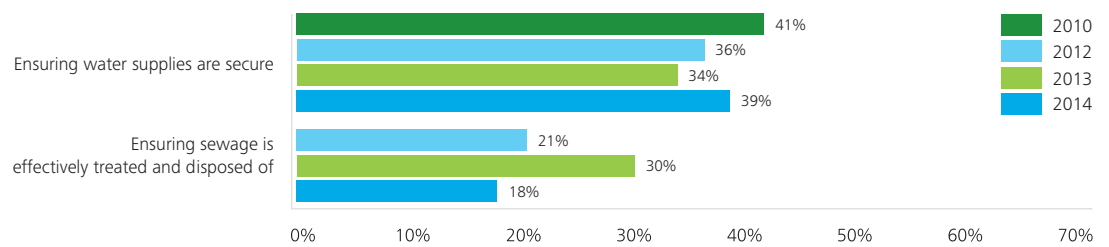
Changes over time

What is the sector doing well?

Respondents were asked how well issues were currently being addressed in their state/territory. They were asked to rate this on a scale from 0 (not very well) to 100 (very well). Ensuring sewage is effectively treated and disposed of was rated as the best addressed issue at 69. Ensuring water supplies are secure was rated the second highest at 67, followed closely by (demonstrating) customer value at 58.

Figure 4: Which three issues do you think are the most important for the water sector?





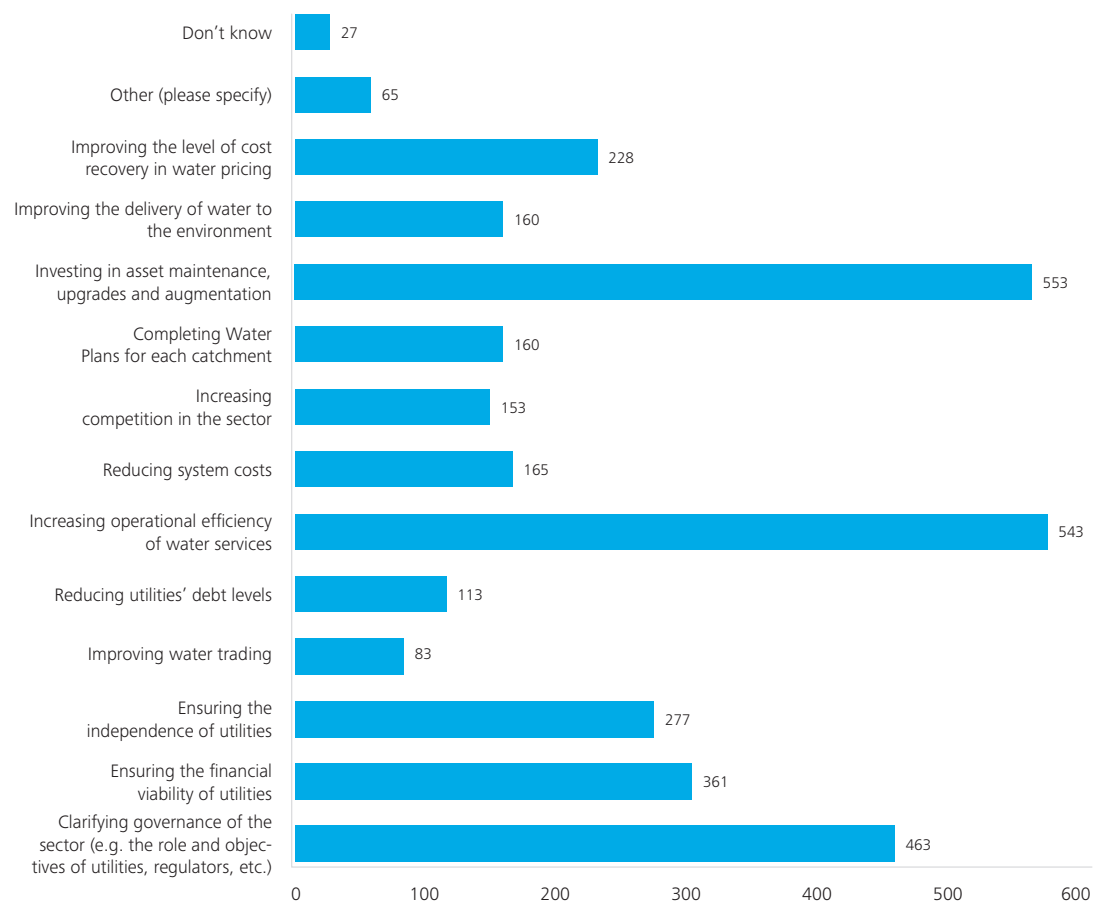
What are the key areas for reform?

Respondents were asked what the top three priorities for reform in the water sector should be. The top issues were:

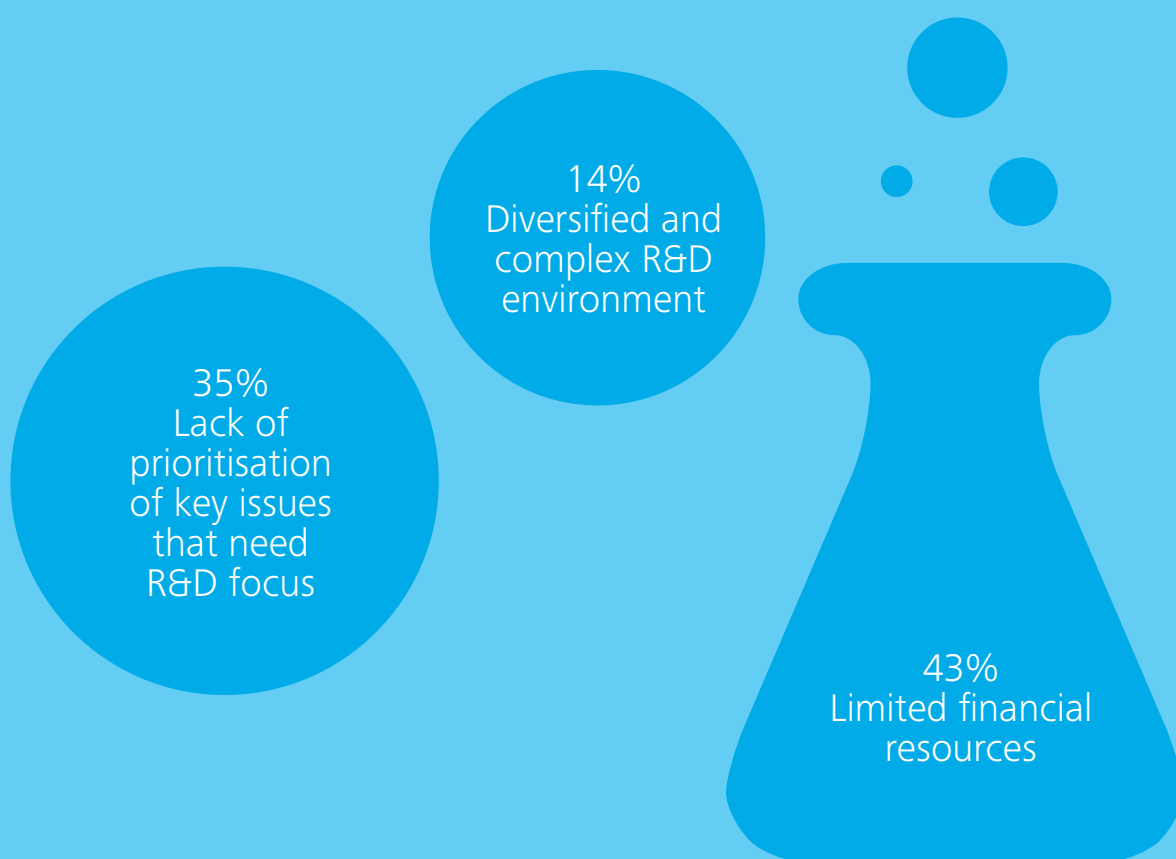
- Increasing operational efficiency of water services (49%)
- Investing in asset maintenance, upgrades and augmentation (48%)
- Clarifying governance of the sector (e.g. the role and objectives of utilities, regulators, etc.) (40%)
- Ensuring the financial viability of utilities (42%).

In general these issues are consistent with the key issues identified.

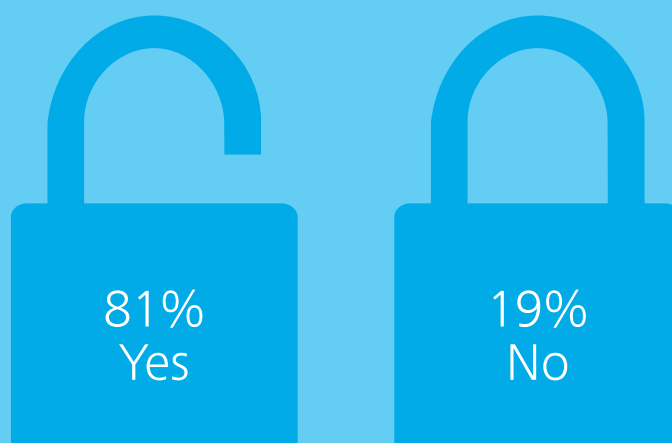
Figure 5: Top three priorities for reform in the water sector in your state/territory



What do you see as the greatest challenge for R&D in the water sector?



Do you think there are opportunities for more public private partnerships in the water sector?



Water reform and economic regulation



Water reform and economic regulation

Water reform

In 2014 respondents were asked to nominate their top three priorities for reform in the water sector. Nationally, and as in 2013, the following were the key priorities:

- Increasing the operational efficiency of the water sector (49%)
- Investing in asset maintenance, upgrades and augmentation (48%)
- Clarifying governance of the sector (42%).

These three national priorities were also the three key priorities nominated in all of the larger jurisdictions, although the order differed. In Victoria, Queensland and Western Australia operational efficiency was the highest priority, while in NSW and South Australia investing in assets was highest.

In the smaller jurisdictions some other priorities were recorded:

- In Tasmania 49% of respondents nominated ensuring water utilities' financial viability as a reform priority. This was also third highest priority in the ACT with 32% identifying it as a priority (up from 22% in 2013)

- In the Northern Territory 41% of respondents identified that completing catchment water plans was a priority.

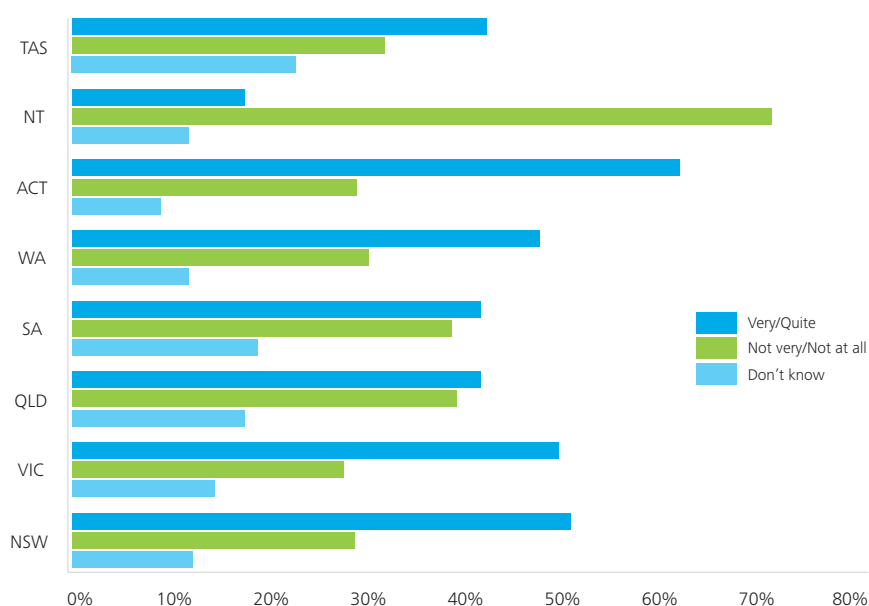
Some of the more notable changes in reform priorities across individual jurisdictions include:

- In Victoria 42% of respondents nominated clarifying sector governance as a priority, up from 32% in 2013. This may be as a result of work being done by the Office of Living Victoria in this area
- In South Australia only 47% of respondents nominated improving operational efficiency as a reform area, a fall from 55% in 2013.

Economic regulation

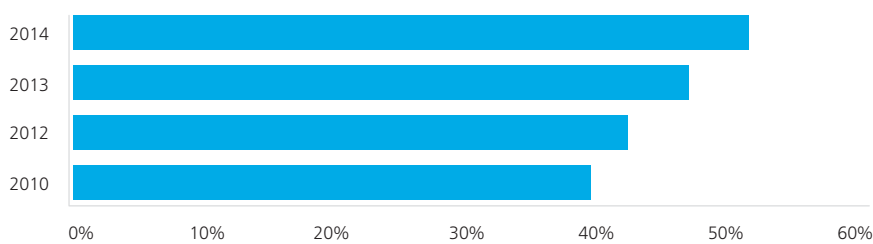
Figure 6 shows the attitudes of survey respondents to the question 'How effective is the economic regulation of water in your state/territory?'

Figure 6: How effective is the economic regulation of water in your state/territory?



As observed last year, the view of the effectiveness of regulation is highest in those jurisdictions - NSW, Victoria and the ACT - where formal and well-established economic regulatory arrangements are in place. Although respondents' view of the effectiveness of economic regulation in Victoria increased from 55% in 2013 to 59% in 2014, for the first time Victoria was not the highest of any jurisdiction. Respondents in both the ACT (63%, up 15%) and NSW (61%, up 11%) considered regulation to be more effective in 2014. No major urban water regulatory decisions were released in NSW between the 2013 and 2014 survey, although the ACT regulator released its pricing decision for ACTEW in June 2013. This provided for an average price fall of 7% in average residential bills. Views across the country regarding the effectiveness of economic regulation have been improving over time, as shown in figure 7.

Figure 7: Effectiveness of economic regulation

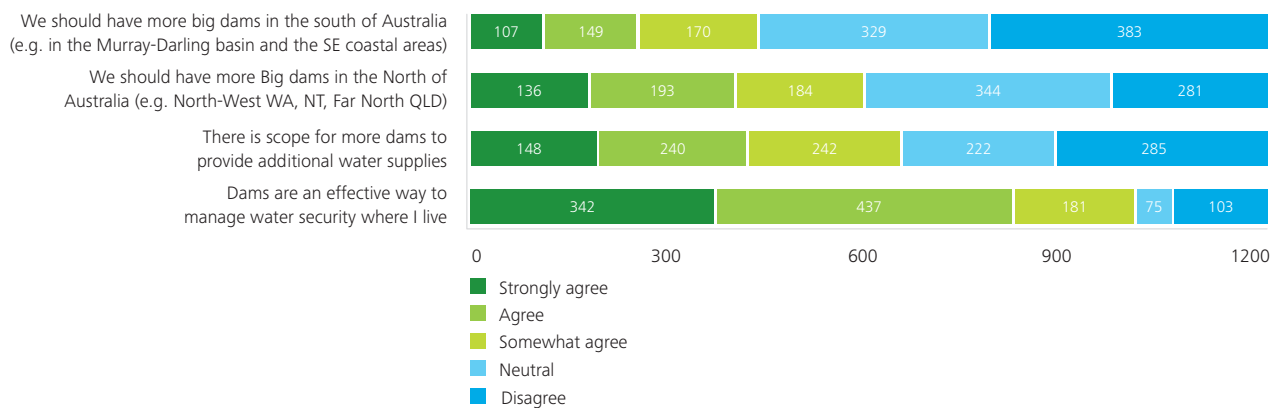


Dams

In 2014 the survey again gauged the water sector's views on dams and their impact on ensuring water security. This follows continued public debate since 2013 about the potential for constructing new dams and increasing dam capacity, particularly for irrigation purposes. In 2014 there has been a public focus on the potential for building dams in Northern Australia from the Federal Government, and dams as a regional water supply in many states.

Eighty-four per cent of respondents at least 'somewhat agreed' that dams are an effective method of managing water security within their region and 55% felt that there is scope for more dams to be built.

Figure 8: Dams as a means to ensure secure water supplies

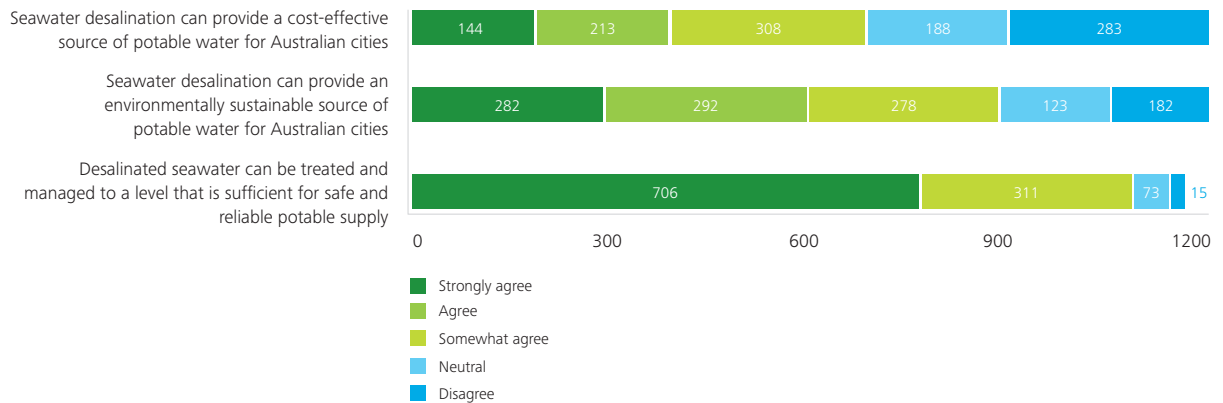


However, when asked specifically about the potential to construct more dams in northern and south eastern Australia, only 45% (northern) and 38% (south eastern) of respondents supported these two propositions.

Desalination

An overwhelming number of respondents (96%) believed that desalinated seawater can be treated and managed to a level that is sufficient for safe and reliable potable supply. However views on whether it is an environmentally sustainable and cost effective source of potable water varies across jurisdictions.

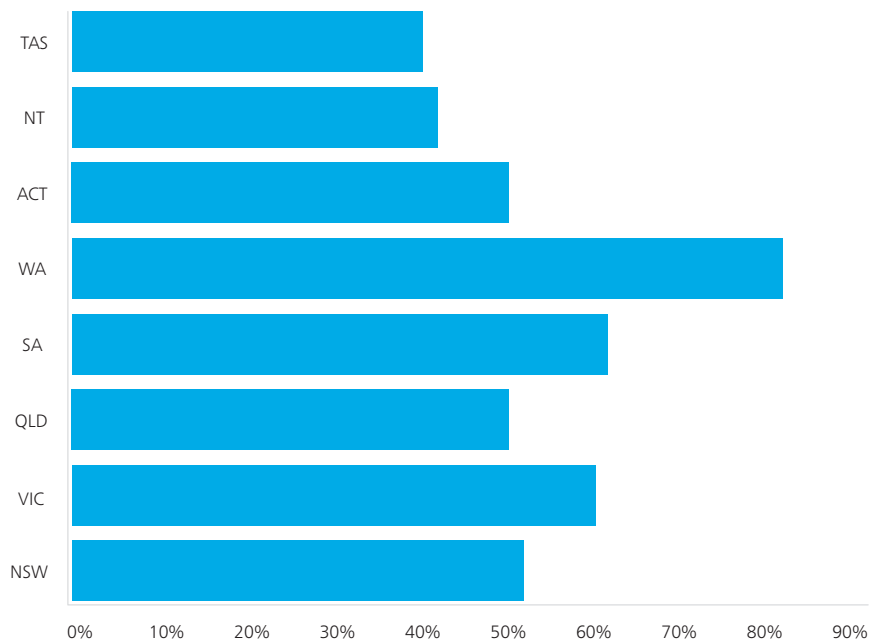
Figure 9: Desalination as a means to ensure secure water supplies



While across Australia 73% of respondents strongly agree, agree or somewhat agree that seawater desalination can provide an environmentally sustainable source of potable water for Australian cities 89% of respondents from WA agree this is the case. However significantly fewer respondents from NSW (72%), the NT (68%) and the ACT (59%) agree.

There were also differing views regarding whether desalination can provide a cost-effective source of potable water for Australian cities across all jurisdictions except for WA. Eighty-three percent of respondents from WA believed it could be a cost-effective source, whereas only 54% of respondents in NSW, 52% in Qld, 44% in the NT and 39% in TAS believed it could be a cost-effective source (see Figure 10).

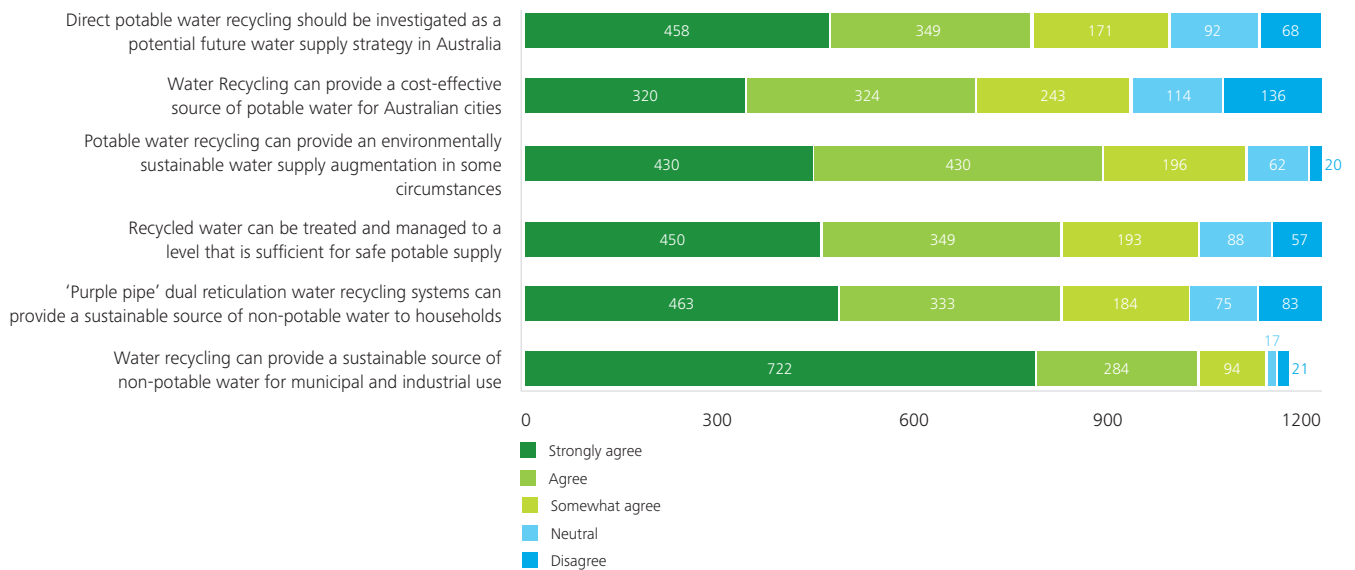
Figure 10: Percentage of respondents who strongly agree, agree and somewhat agree that seawater desalination can provide a cost-effective source of potable water for Australian cities



Recycled water

In Australia there has been exponential growth of water recycling infrastructure over the last 20 years. Most respondents, (approximately 97%) strongly agreed, agreed or somewhat agreed that water recycling can provide a sustainable source of non-potable water for municipal and industrial use. That amount reduced only slightly to around 87% who agreed that recycled water can be treated and managed to a level that is sufficient for safe potable supply. Over 89% of respondents agreed that direct potable water recycling should be investigated as a potential future water supply strategy in Australia.

Figure 11: Recycled water as a means to ensure secure water supplies

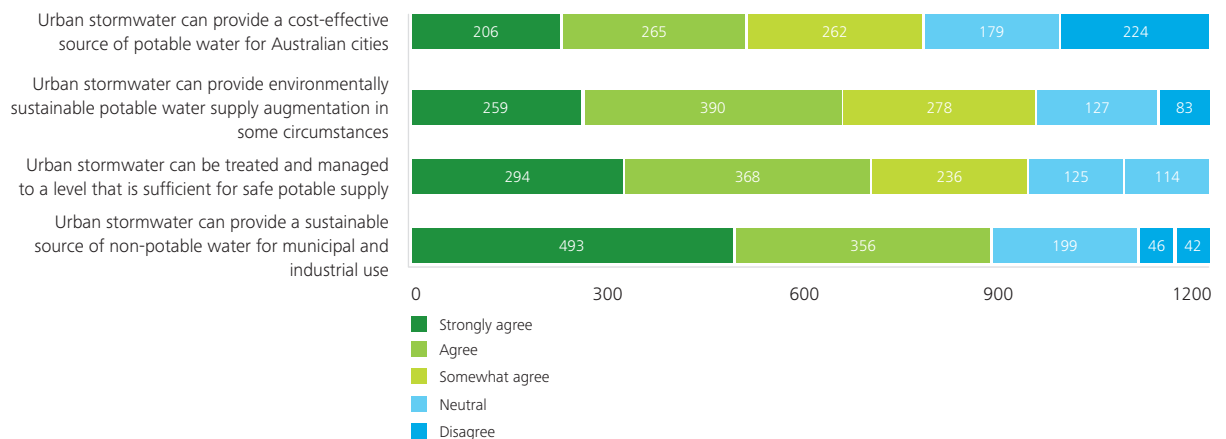


Urban stormwater

There is growing use of stormwater harvesting in Australia, in particular in South Australia where it is mostly applied to irrigation of parklands and agricultural areas. The Victorian State Government is also actively pursuing stormwater harvesting.

Most respondents (92%) strongly agree, agree or somewhat agree that urban stormwater can provide a sustainable source of non-potable water for municipal and industrial use. This figure drops only slightly to around 79% of respondents who also believe that urban stormwater can be treated and managed to a level that is sufficient for safe potable supply. However fewer respondents still believe that it is a cost-effective source of potable water for Australian cities (65%).

Figure 12: Urban stormwater as a means to ensure secure water supplies



The price
of water



The price of water

Water pricing

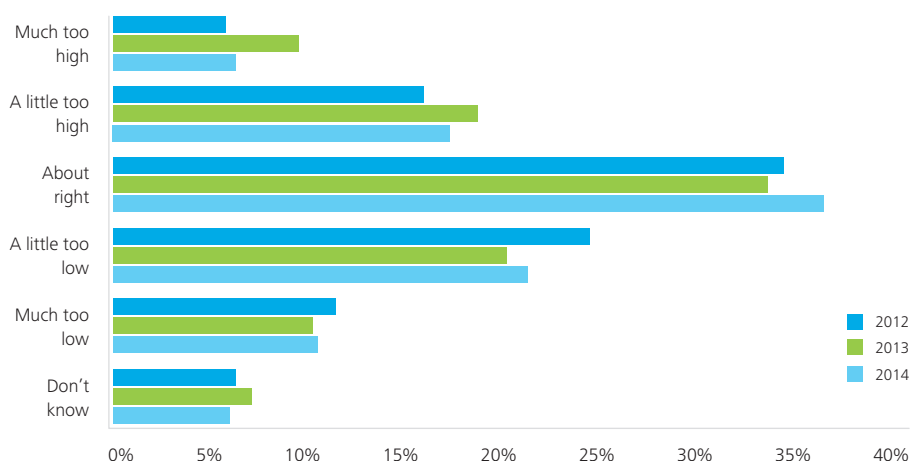
Water pricing remains a 'hot topic' in the industry. Although price rises in 2013 in most jurisdictions were less than in previous years (Melbourne and Perth being exceptions) the industry is clearly concerned about the public's view on household water bills.

In the 2014 survey responding to community concern about rising prices was the fourth most frequently identified issue, with 37% of respondents nominating it. This is a significant increase over the 25% of respondents who identified it as an issue in 2013. In some jurisdictions concern is particularly high. For example in South Australia 52% identified it as an issue. This made it the highest ranking issue in South Australia and represents almost a doubling since 2012. The reason for this is not clear given that water prices and average bills actually fell in 2013-14 compared to 2012-13, the first year of SA Water's new three year regulatory period. It is possible the increased concern over prices reflects the much larger price increases in 2011-12 and 2012-13.

Governments appear to be directly responding to customer concerns about rising prices and where necessary are circumventing or augmenting regulatory processes to do so. The Victorian Government's 'Fairer Water Bills' initiative is an example of this and it resulted in \$100 reductions in residential water bills in Melbourne in 2014-15. In South Australia the Government offered one-off rebates and increased concessions to alleviate bill pressures in 2012-13.

Overall, respondents were slightly more relaxed about prices in 2014 than 2013, with slightly more respondents considering prices in their state or territory to be 'about right' and fewer considering them to be much or a little too high. Consistent with community concerns noted above, South Australia was the main State that was contrary to this trend, with 46% of respondents believing prices were much too high or a little too high, an increase from 37% in 2013. Interestingly the jurisdictions which use on average the most urban water – the Northern Territory and Western Australia – are those where concern about prices is lowest.

Figure 13: How would you rate the price of water in your state?



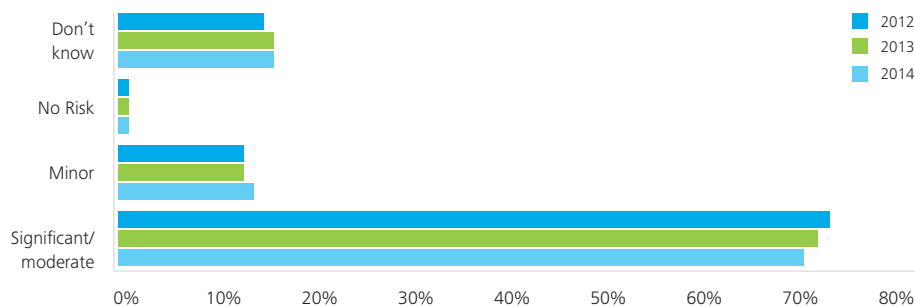
Coal
seam gas



Coal seam gas

Over the past three years there has been intense debate on the issue of coal seam gas (CSG) extraction and its potential impact on the environment including water. Despite the continued presence of CSG related articles in the media, this survey highlights water sector attitudes toward CSG have not changed significantly in the past 12 months. The percentage of respondents who think CSG has a significant or moderate effect on the overall management of ground or surface water has decreased slightly in the past three years from 73% in 2012, to 71% in 2013 and 70% in 2014.

Figure 14 – How much of a risk do you think coal seam gas extraction is to the overall management of ground and surface water?



The ACT, NSW and QLD are the states that are mostly impacted by CSG extraction, as these states are where most recoverable gas is found. Of the respondents in these states, 87% think that CSG poses a risk to water resources, with 74% considering this risk as significant or moderate.

Sixteen per cent of all respondents stated that they didn't know if CSG was a risk to the overall management of ground and surface water, with the highest level of uncertainty in Victoria with 26%.

Section 2: State reports



Section 2: State reports

New South Wales

Respondents from New South Wales have maintained their correlation with the national response by indicating a high level (61%, down 1% from 2013) of confidence in their water sector.

Respondents were asked to identify the top three most important issues for the NSW water sector now and in five years' time. Respondents concurred that the biggest issue facing the water sector now was maintaining and augmenting infrastructure (48%, up 7% from 2013), followed by improving operational efficiency (44%, up 9%) and ensuring water supplies are secure (40%, up 11%). In five years' time, NSW respondents again identified ensuring the security of water supplies as a key issue (45% of respondents, up 5%). Mitigating extreme weather events was also heavily represented (34%, up 6%).

Looking forward, 82% of NSW respondents indicated that they believed there are adequate opportunities for partnerships between public and private enterprise within the water sector.

Respondents were also asked to identify the main issues relating to the skills shortage in the water sector. NSW respondents were split, identifying the two main issues almost equally, capacity development (34%) and leadership and culture (32%) – responses that were echoed by the rest of the country.

Environmental issues

Consistent with responses over the last few years and reflected by the rest of the country, climate change was identified by 48% of NSW respondents as a significant risk to the sustainable management of water and by 33% as a moderate risk. However, opinion is divided about how well the state is responding to the impacts of climate change. Forty-four per cent of respondents indicated the state was performing quite well or very well, whereas 48% believed it was not performing very well if at all. A similar split is felt by the rest of the country, but not quite as juxtaposed. Sixty-seven percent of NSW respondents believed the water sector should focus on ensuring systems can withstand extreme weather/events (e.g. fire or flood) to best address the impacts related to climate change.

To provide additional water to the environment through a cost-effective method, 33% of NSW respondents favoured infrastructure investment with some water buybacks, while 22% of respondents preferred infrastructure investment alone. A similar sentiment was felt by the rest of the country excluding ACT.

Most NSW respondents (56%) were not supportive of curtailing water conservation programs and efficiency programs during wetter periods. During drier periods and in times of scarcity most NSW respondents (51%) were supportive of imposing restrictions rather than increasing urban water prices.

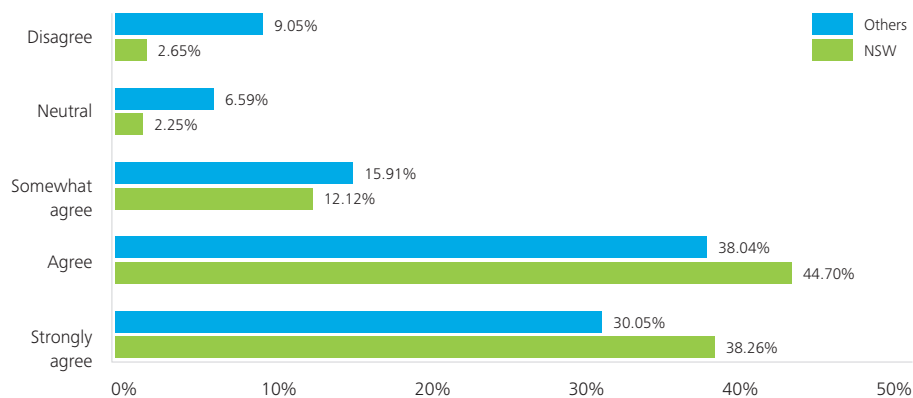
Water security and supply

To provide for the water supply needs of urban users, 68% of NSW respondents support increasing access to supplies from innovative sources (e.g. rainwater, stormwater) while 61% support curbing the demand for water through education, similar responses are similar to the national responses.

Echoing the sentiment felt by their interstate neighbours, 87% of NSW respondents agree or strongly agree that desalinated seawater can be treated and managed to a level that is sufficient and safe for potable supply. Additionally, 44% agree or strongly agree that desalinated seawater can provide an environmentally sustainable source of potable water for Australian cities (only 22% disagree). In terms of providing a sustainable source of non-potable water for municipal and industrial use, 84% agree or strongly agree to the use of recycled water compared with 74% of respondents for urban storm water.

Notably, 83% of NSW respondents either agree or strongly agree that dams are an effective way to manage water security, compared with the national average of 68%.

Figure 15: Dams are an effective way to manage water security where I live



In regard to providing for the water supply needs of rural/agricultural users, 53% of respondents favoured facilitating the transition to more water efficient or higher value crops, while 47% supported the repair of irrigation infrastructure.

In terms of the risk of unconventional gas extraction to the overall management of ground and surface water, 77% of NSW respondents have indicated a moderate (32%) or significant (45%) risk, and a similar opinion is maintained in the other Australian states. Consistent nationally and largely consistent with last years' results, 69% of NSW respondents indicated the risk was centralised to groundwater.

Regulation and reform

Consistent with the results from last years' survey, NSW respondents believe that the top three priorities for reform in the water sector were investing in asset maintenance, upgrades and augmentation, increasing operational efficiency of water services and clarifying governance of the sector.

NSW respondents believed that economic regulation of water in their state is effective with 61% indicating a confidence level of quite or very effective, much higher than the national average of 52%. Consistent with the national response, the majority of NSW respondents agree that the regulator should review prices periodically to ensure monopoly power is not abused. Only 16% of NSW respondents believed they should determine the prices charged by utilities.

The price of water

Sixty-six per cent of NSW respondents believed the current price of water was about right or a little too low, which is largely comparable to the national average of 60%.

Queensland

Around 58% of Queenslanders rated the water sector in 2014 as sound or very sound, a minimal change from last year. The three standout issues identified by Queensland respondents are improving operational efficiency (45%, up 9%), responding to community concern over rising prices (44%, up 13%) and ensuring water supplies are secure (39%, up 16%), which is strongly correlated with national averages.

Queensland respondents identified ensuring water supplies are secure as the primary issue to address in five years' time (38%, up 4%), followed by the need to mitigate the impact of extreme weather events (29%, up 4%). Regardless of longer term concerns about the security of water supplies, 88% of Queenslanders have indicated the current water supplies are either quite or very secure.

Environmental issues

Mirroring last year's responses, 46% of Queensland respondents indicated climate change poses a significant risk to the sustainable management of water, with an additional 35% indicating a moderate risk. Thirty-four per cent of Queensland respondents indicated the water sector is responding quite well or very well to climate change impacts, no change from 2013.

The most popular views on actions to address climate change are: ensuring systems can withstand extreme weather/events (66%), diversifying sources of water supply (62%) and ensuring asset management strategies account for longer term changes (57%).

Approximately 70% of respondents have indicated a moderate or significant risk on ground and surface water as a result of unconventional gas extraction. The bulk of these responses (63%, up 5%) indicated the concern centres around the quality of groundwater.

Returning water to the environment

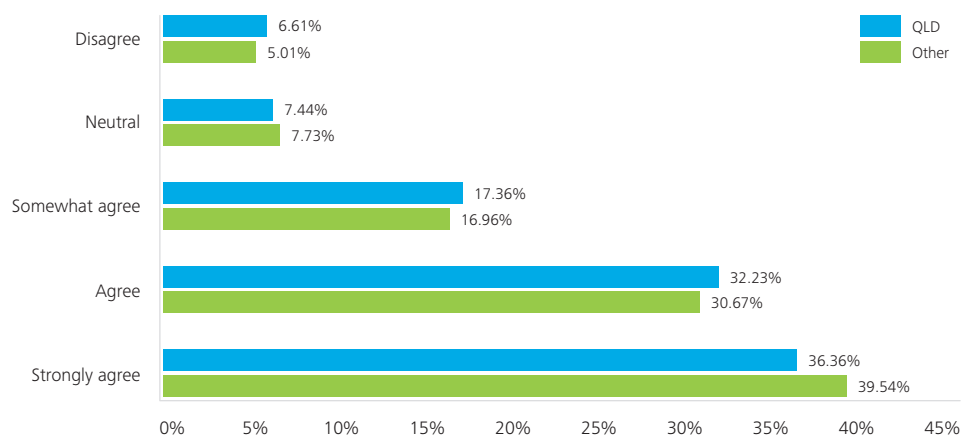
When asked how best to meet the water requirements of the environment, 64% of Queensland respondents supported improving the efficiency of consumptive uses of water (such as repairing or upgrading irrigation systems). However there was also strong support for investing more in research to understand the environment's water needs, particularly critical environmental assets (59%).

When asked what the most cost-effective method to provide additional water to the environment was, Queensland respondents showed strongest support for a combination of infrastructure investment and water buybacks, which garnered 48% of responses. There was also support for infrastructure investment alone (17%).

Urban and rural water security and supply

Queensland respondents indicated a high level of support for alternative sources of water supply for both potable and non-potable purposes. Approximately 64% (down 5%) of Queenslanders believe accessing water supplies from innovative sources (e.g. recycling or stormwater) would help to meet the urban water supply requirements. Eighty-nine per cent of Queensland respondents agree or strongly agree that recycled water can provide a sustainable source of non-potable water for municipal and industrial use, and this drops to 74% for urban stormwater. Desalinated seawater was supported by 85% of respondents as being able to be treated and managed to a level that is sufficient for safe and reliable potable supply.

Figure 16: Recycled water can be treated to a level that is sufficient for safe potable water supply



The most popular options to meet the water supply requirements of urban users included curbing demand through education (57%, down 2%) and encouraging urban citizens to install rainwater tanks 39% (down 11%).

Eighty-two percent (up 4%) of Queensland respondents expressed the view that dams are an effective way to manage water security, while 49% believed there is moderate scope for dams to provide additional water supplies.

To meet rural water supply requirements Queensland respondents favoured transitioning to more water efficient or higher value crops (55%, down 3%), encouraging expansion of agriculture into areas with more secure water supplies (42%, down 4%) and repairing irrigation infrastructure (41%, down 4%).

Regulation and reform

Queensland respondents remained sceptical about the overall effectiveness of economic regulation of the water sector with 37% rating it as minimally effective at best, a 1% decrease from last year. A mere 3% said regulation was very effective, which is consistent with national average of 4%. There is strong support (67%, down 3%) for economic regulators to periodically review the prices charged to ensure monopoly power is not abused.

In a shift from last year, 28% (up 5%) of Queensland respondents indicated that bulk water suppliers are best placed to decide when water supplies should be augmented. This was closely followed by government departments (27%, unchanged). Interestingly, support for water retailers/distributors dropped from 32% to 19%.

The three most significant issues for Queensland respondents remained consistent with last year with a focus on increasing operational efficiency of water services, investing in asset maintenance, upgrades, and augmenting and clarifying the governance of the sector (e.g. the role and objectives of utilities, regulators, etc.).

The price of water

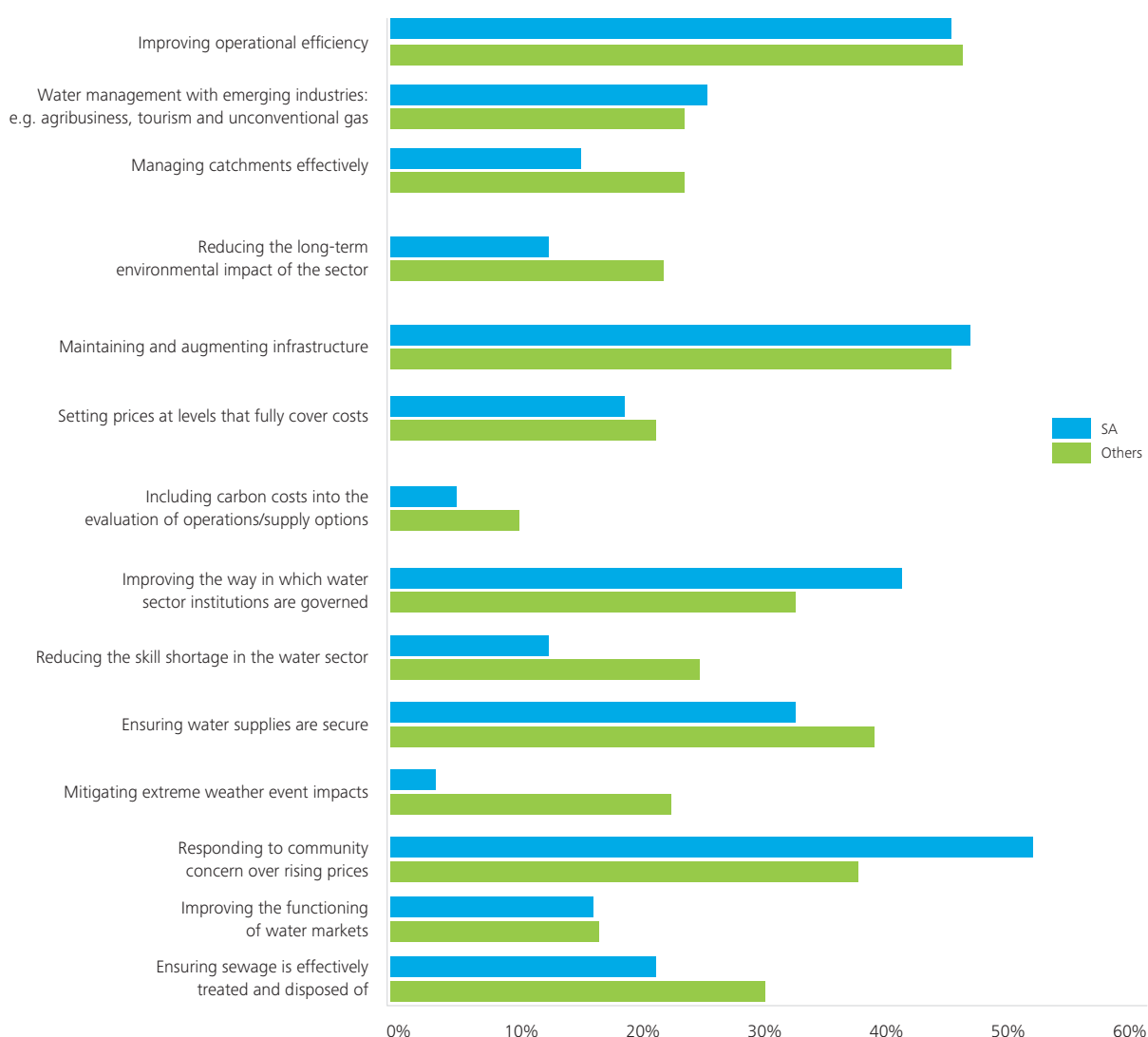
The percentage of Queensland respondents who indicated the price of water was about right or a little too high was 52%, up from 50% in 2013. An additional 17% indicated it was much too high.

South Australia

Respondents in South Australia (SA) noted slight erosion in their level of confidence in the state of the water sector. The level of confidence in the state of the water sector decreased 9% from 2013 to 61%. Most notably, however 4% of SA respondents last year considered the water sector to be very sound, whereas this year it dropped to none of the respondents.

In contrast to the other states, SA respondents considered the most pressing issues for the water sector in the short term to be the response to community concerns over rising prices (52%, up 25%), improving operational efficiency (45%, up 12%) and improving the way in which water sector institutions are governed (41%, up 23%). Longer term, 41% (up 12%) of SA respondents indicated that the security of water supplies will be the most significant issue in five years however at present 95% of respondents indicated that they consider their current water supplies to be quite or very secure.

Figure 17: Key issues – South Australia versus all others



Climate change

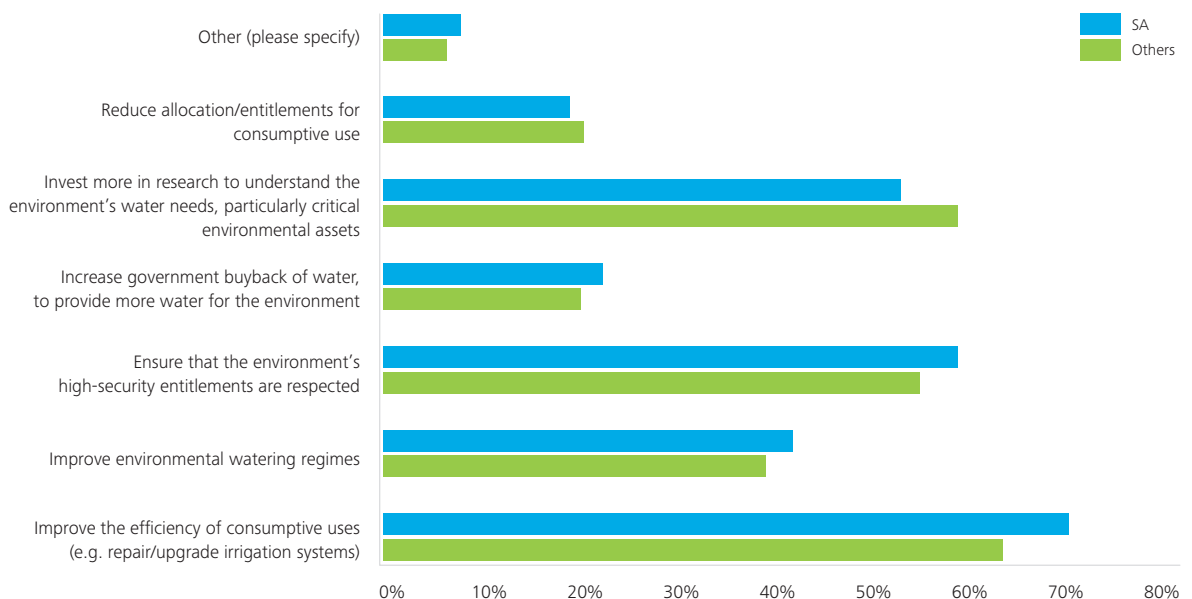
On par with last year's results, SA respondents generally reflect national sentiment that climate change is a significant or moderate risk to the sustainable management of water (81% compared with national average of 86%). A greater percentage of SA respondents (74%, up 11%) believe that the sector is responding well to climate change impacts, compared to the national average of 51%. In responding to climate change, SA respondents indicate that the water sector should focus on diversification of water supply (75%) and ensuring asset management strategies account for longer term changes (64%).

In terms of water conservation, there is minimal support for curtailing water conservation and efficiency programs during wetter periods with 60% indicating marginal if any support for curtailment. Most SA respondents believe that charging higher urban water prices in times of water scarcity rather than imposing restrictions is either not very beneficial (33%) or not at all beneficial (19%), this is reflective of the national averages (35% and 17% respectively).

Returning water to the environment

The majority of SA respondents (71%, compared with national average 63%) indicated that improvements to the efficiency of consumptive uses (e.g. repair/upgrade irrigation systems) is the most important issue to address to meet the water requirements of the environment. SA respondents largely agree with all other states that the most cost-effective way to provide more water to the environment is by favouring a combination of infrastructure investment (32%) and water buybacks (33%).

Figure 18: What are the three most important things that could be done to meet the water requirements of the environment



Security of supply

To maintain security of supply most SA respondents believe more water needs to be accessed from innovative sources (e.g. recycling, stormwater) (75%, down 11%), and that the demand for water needs to be curbed through education (56%, up 1%). These sentiments are largely shared by the rest of the country. There was also very high support for desalinated water by South Australian respondents with 99% agreeing or strongly agreeing that desalinated seawater can be treated and managed to a level that is sufficient for safe and reliable potable supply.

As in the rest of the country, SA respondents indicated a preference for recycled water (94%) rather than storm water (81%) to provide a sustainable source of non-potable water for municipal and industrial use. When asked if dams are an effective way to manage water security where you live, 55% of SA respondents agreed or strongly agreed, up 6% from 2013 but still much lower than the national average of 68%. Only a quarter of SA respondents strongly agreed or agreed there was scope for more dams to provide additional water supplies, lower than the national average of 34%. Compared to the national average of 70%, only 53% of SA respondents believed that unconventional gas extraction methods pose a risk to the overall management of ground and surface water. As in the rest of the country, most SA respondents (63%) were concerned about impacts on groundwater quality.

To meet the water supply requirements of rural users, 62% (down 3%) of SA respondents believed the highest priority is to facilitate a transition to more water efficient or higher value crops.

Regulation and reform

Approximately 44% of SA respondents are satisfied with the effectiveness of economic regulation, up 5% from 2013. However dissatisfaction with economic regulation still remains very high, with 39% of respondents (up 1%) indicating minimal if any satisfaction with the effectiveness of economic regulation of water. Consistent with national sentiment, most SA respondents (69%, down 6%) indicated that the primary role of economic regulators should be ensuring that monopoly power is not abused.

Water prices

Respondent satisfaction with water prices has deteriorated since 2013 with 35% rating pricing as about right, 7% lower than last year but comparable to the national average of 38%. At the same time 45% (up 8%) of respondents rated prices as much too high or a little too high, much higher than the national average of 23%.

Victoria

Victorian respondents had a higher overall satisfaction with the soundness of the water sector in comparison to other jurisdictions. Around 67% of respondents rated the sector as sound or very sound, a 4% decrease from 2013, but still greater than the national average of 64%.

Victorians considered operational efficiency improvements to be the most significant issue to address in the short term (51% of respondents, up 11%). The Victorian response may reflect the strong focus on cost reductions by the Victorian government and water agencies. Only Tasmanians possess an equally high level of concern regarding this issue. Also heavily identified were responding to community concerns over rising prices (44%), and improving the way in which water institutions are governed (38%).

If a medium term perspective is adopted, Victorians are most concerned about ensuring supplies are secure (39%, up 2%) and mitigating extreme weather event impacts (40%).

Despite this medium term outlook, Victorians are confident that current water supplies are secure, with 92% (up 4%) of respondents indicating they consider their water supplies to be either quite or very secure.

Looking ahead around 77% of Victorians identified that there are opportunities for public-private partnerships (PPPs) in the water sector. This was lower than the national average of 81%.



Climate change

A significant proportion of Victorian respondents (89%) believed climate change will have a significant or moderate impact on the water sector, which is largely consistent with the rest of the country. Presently 58% of all Victorian respondents believe that the impacts of climate change are being responded to well; however, 37% disagree with this.

To address the impacts of climate change, Victorians support diversifying sources of water supply (69%) and ensuring systems can withstand extreme weather/events (66%). These figures are generally consistent with those across the remainder of Australia.

Returning water to the environment

More than half (57%) of Victorian respondents believed repairing irrigation infrastructure should be the top priority for meeting the water supply needs in rural and agricultural areas – an area being addressed through the Northern Victorian Irrigation Renewals Project. This was by far the highest response rate across the country with the next highest being the ACT at 48%. The second highest response to this question by Victorians was the need to facilitate the transition to more water efficient higher value crops (56%). Victorians believe that meeting water requirements of the environment would require improving the efficiency of consumptive uses (e.g. repair/upgrade irrigation systems) (62%) and ensuring that the environment's high-security entitlements are respected (57%). In terms of the most cost effective way to provide additional water to the environment, Victorians support infrastructure investment as opposed to water buybacks - this is consistent with last year.

Ensuring urban and rural security of supply

To maintain secure supplies the focus remained consistent with last year – centring around accessing supplies from innovative sources (69%, down 8%) and curbing demand for water through education (59%, up 1%). These are in line with the remainder of the country.

Most Victorians (92%) agree or strongly agree that desalinated seawater can be treated and managed to a level that is sufficient for safe and reliable potable supply. This drops to only 55% for urban stormwater. Both responses are consistent with national averages of 90% and 58% respectively.

In relation to sustainable sources of non-potable water for municipal and industrial use, Victorians prefer the use of recycled water (88%) rather than urban stormwater (76%) which is a consistent trend across all states.

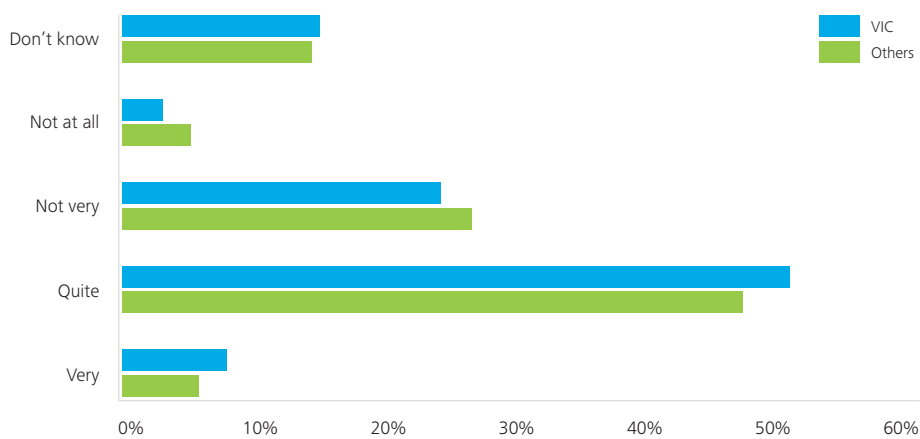
There was strong support for dams with 66% of Victorians agreeing or strongly agreeing that dams are an effective way to manage water security.

Compared to the national average of 41%, Victorians were relatively less concerned about the extraction of coal seam gas, with only 35% of Victorians believing that the process posed a significant risk to the management of ground and surface water. However, 22% of Victorians did not know or had no view on the aspect of water management which would be most impacted by unconventional gas extraction, reflecting the lack of coal seam gas reserves and exploration in Victoria. Of the respondents who held a view, 55% indicated unconventional gas extraction would have the most impact on ground water quality management – again, this response is less pronounced than the national sentiment (62%).

Regulation and reform

Most Victorians (59%, up 4%) were quite or very content with the current economic regulation of the water sector. While this is higher than the national average (52%) New South Wales recorded a higher satisfaction rate than Victoria for the first time.

Figure 19: How effective is the economic regulation of water in your state/territory?



Victorian respondents indicated that the highest priority areas for reform were:

- Increasing operational efficiency of water services (142%)
- Investing in asset maintenance, upgrades, and augmentation (41%)
- Clarifying governance of the sector (e.g. the role and objectives of utilities, regulators, etc.) (37%)

When asked who is best placed to decide when water supplies should be augmented, 40% of Victorians believed it is water retailers/distributors while 22% believed it should be government departments, lower than the national average of 33%.

The price of water

Despite significant price rises in 2013-14 in Melbourne, the proportion of Victorians who considered water prices to be much or a little too high fell from 27% in 2013 to 20%. More Victorians consider water prices to be a little or much too low (29%).

Western Australia

In Western Australia, 74% of respondents considered the state of the water sector across Australia to be quite or very sound, an increase of 11% from 2013.

Fifty-nine percent of Western Australian respondents identified security of supply as the key issue to be addressed. This is down 2% from 2013, indicating a higher level of confidence this year. However 44% of respondents agreed that it will continue to be an issue for the next five years, but this is also down 7% from last year.

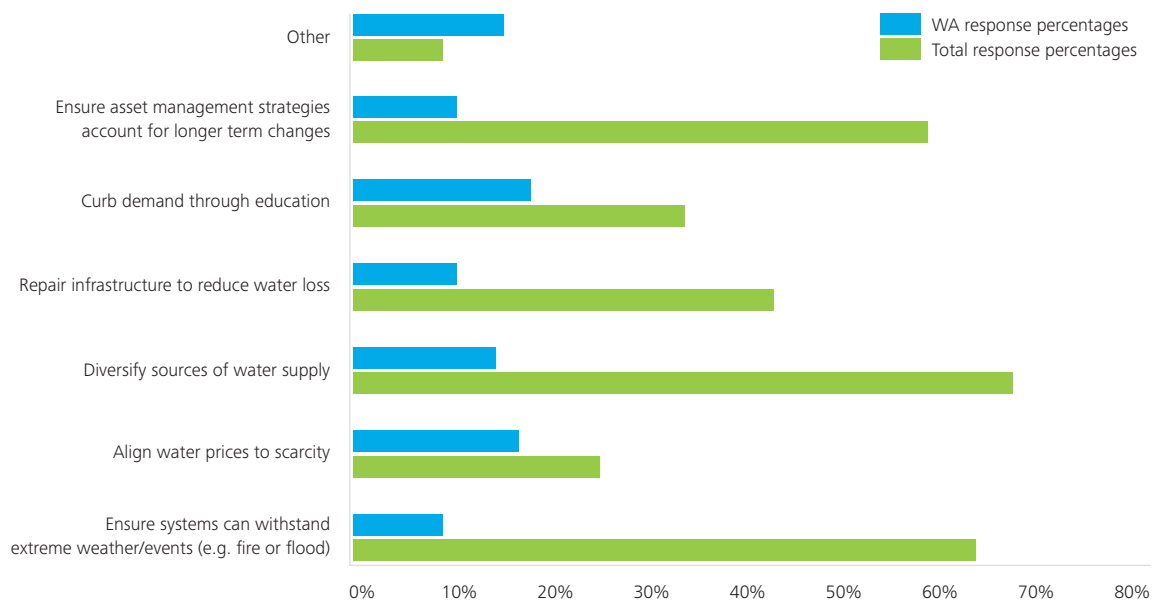
In considering opportunities for business development, 79% of Western Australians believe there are opportunities for partnerships between public and private enterprise. This is slightly lower than the national average of 81%.

Climate change

The impact of climate change on the sustainable management of water has remained a serious issue for Western Australian with 95% of respondents agreeing it will have either a significant (68%) or moderate (27%) impact. However, there is confidence in the ability of the state to respond to these challenges as 73% of respondents indicated the industry is currently responding either very well (19%) or quite well (54%) to climate change.

To address the impacts of climate change, most respondents (77%) indicated there should be further diversification of water supply sources, a large increase of 20% from 2013. It is important to note that this is also consistent with most other jurisdictions (with ACT, QLD and Tasmania being exceptions).

Figure 20: What three things should the water sector focus on to address/impacts related to climate change?



Returning water to the environment

There is support for infrastructure investment and water buybacks in Western Australia – 53% (down 5%) of respondents indicating that a combination of these measures would be the most cost effective way of providing additional water to the environment. To meet the water requirements for the environment 62% agreed there is a need to improve the efficiency of consumptive uses of water (e.g. repair/upgrade irrigation systems) and 63% agreed there is a need to invest more into research to understand the environment's water needs (particularly critical environmental assets). These areas remain a focus for respondents despite a 6% decrease in support for respondents despite a 6% decrease in support for each since last year.

Ensuring rural and urban security of supply

In addition, there is minimal support for the curtailing of water conservation and efficiency programs during wetter periods with 63% of responses supporting marginal curtailment if any.

With regard to the debate around higher prices versus water restrictions, respondents from Western Australia were very much divided with 50% indicating there is minimal benefit to higher prices while 39% indicated a reasonable or high benefit.

Largely consistent with last year's results, 68% of Western Australians are of the opinion that in order to meet the water supply of rural or agricultural users, there should be a transition to more water efficient or higher value crops. 43% also supported the expansion of agriculture in areas where the water supply is more secure.

In contrast with views regarding further diversification of water supply sources, fewer Western Australians supported the need to access urban supplies from innovative sources (75%, down 9%). This was offset by an increase in support for curbing demand for water through education (71%, up 9%).

Regulation and reform

Priorities for reform of the water sector for Western Australians include improving the operational efficiency of water services and investing in asset maintenance upgrades and augmentation (both 50%).

The majority of Western Australians are happy with the role of economic regulation in the sector, with greater than half of the State's respondents (57% up 13%) believing that regulation is either quite or very efficient. Accordingly, 42% of Western Australians are supportive of government departments determining the need for supply augmentation. The biggest improvement they would like to see is for regulators to periodically review the prices charged to ensure that monopoly power is not abused (68% of people agreed on this action, compared with 72% last year).

Water prices

Only 11% of respondents consider urban water prices are a little or much too high, a drop from 20% in 2013 and lower than the national average of 24%.



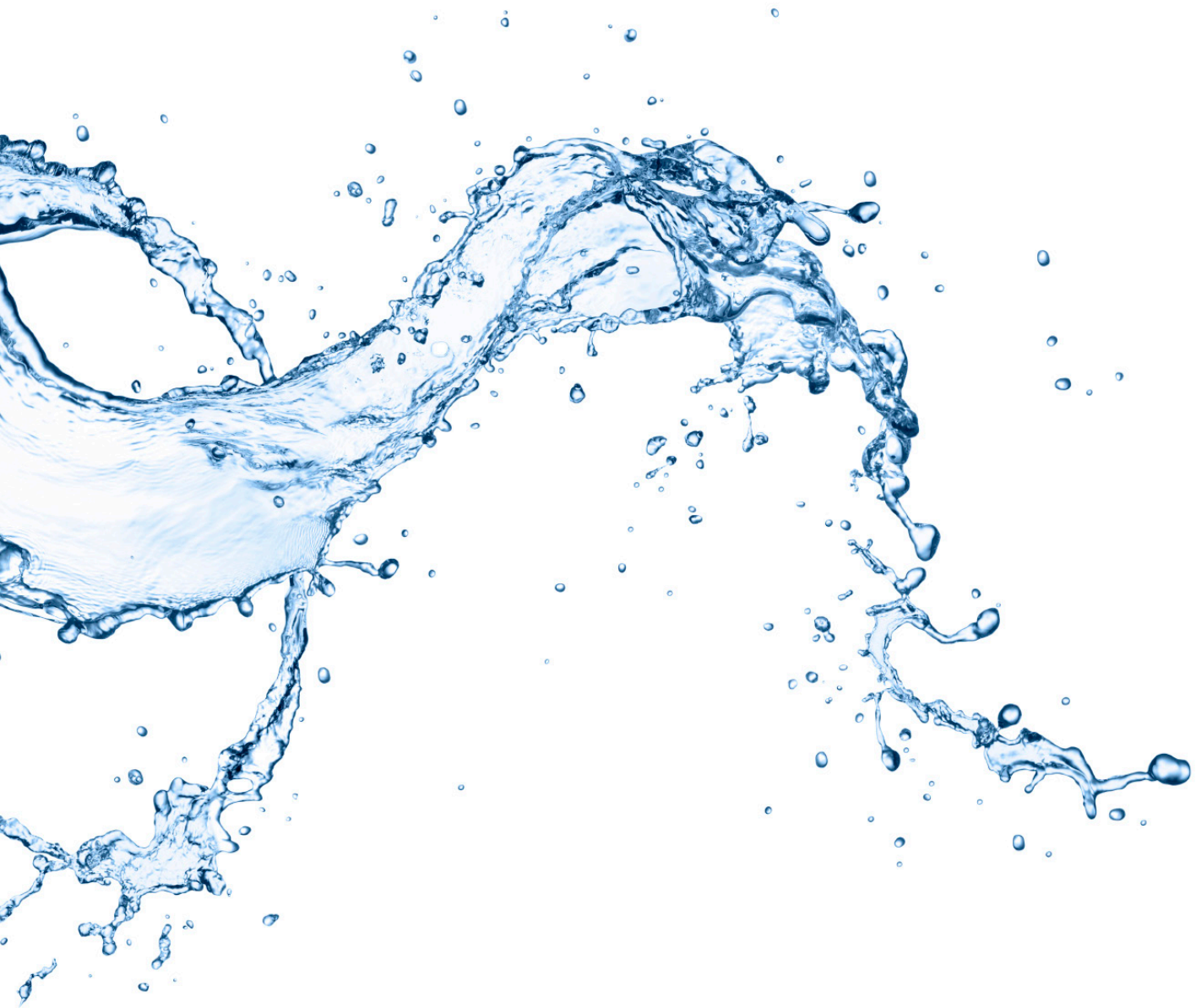
Methodology



Methodology

The State of the Water Sector Survey 2014 was open to all water professionals from 14 April 2014 to 19 May 2014. The survey was facilitated using the Deloitte online survey system, Qualtrics, and was completed by 1,243 respondents.

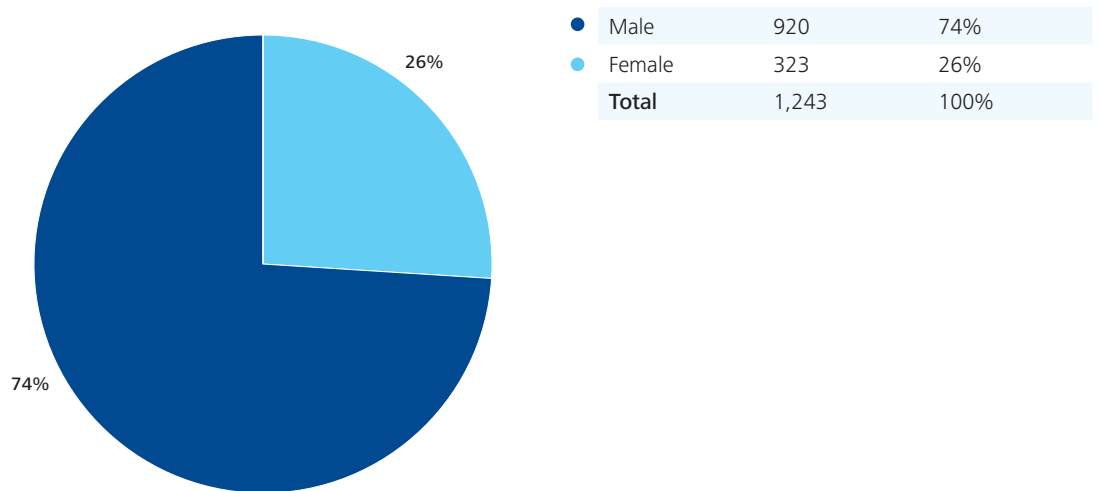
Note: Where we identified duplicate entries from one respondent we used the respondent's first successful submission only in our analysis of the survey results.



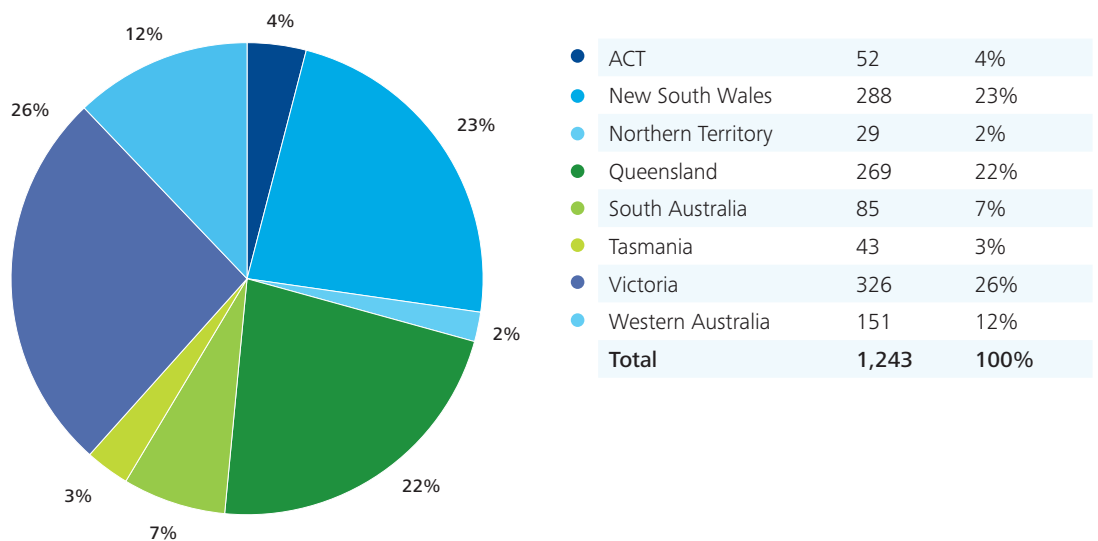
Appendix A

Respondents were asked to answer the following questions to enable analysis of trends by state and region, occupation, organisational sector and other criteria.

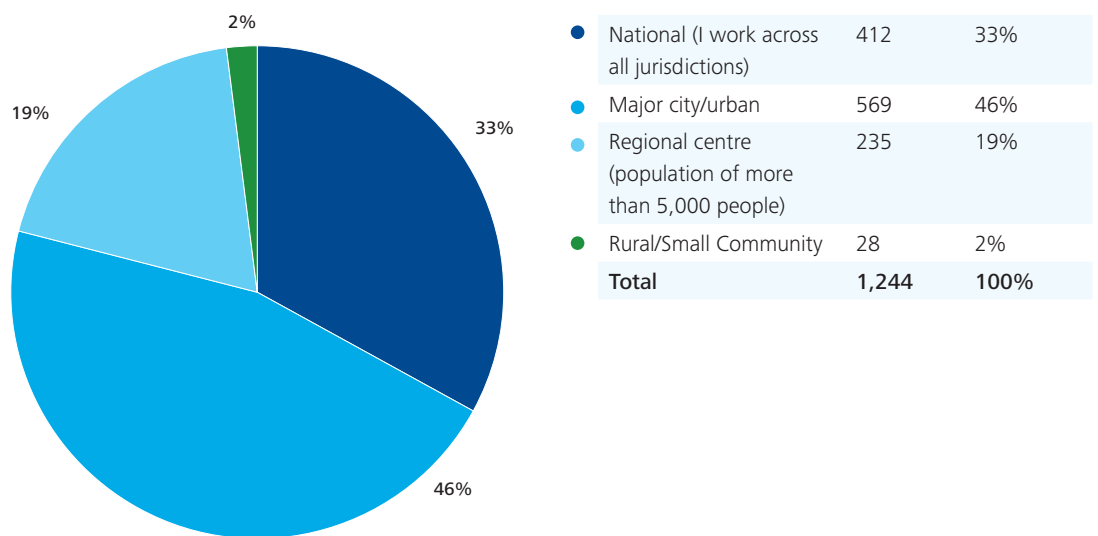
What is your gender?



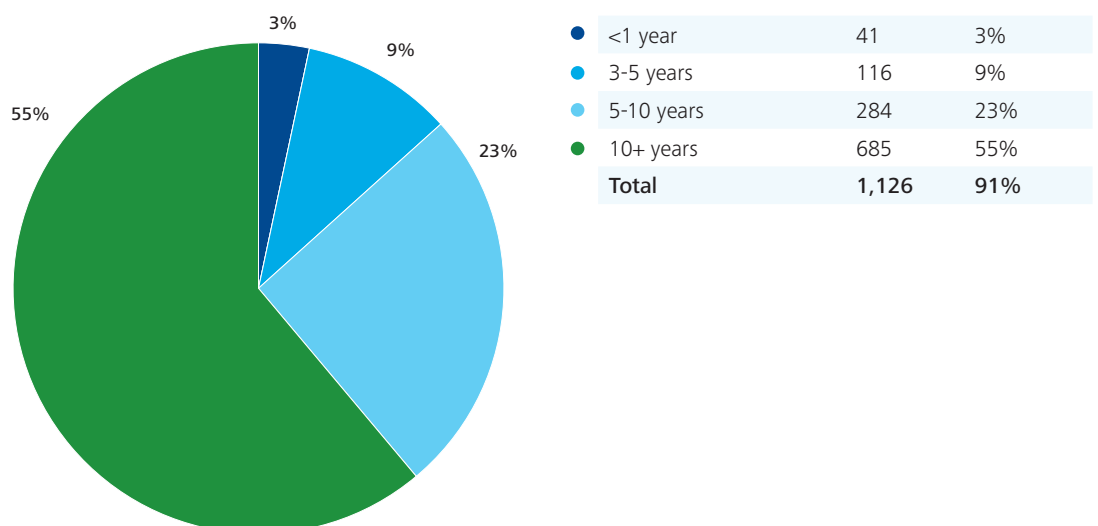
Which state/territory do you live in?



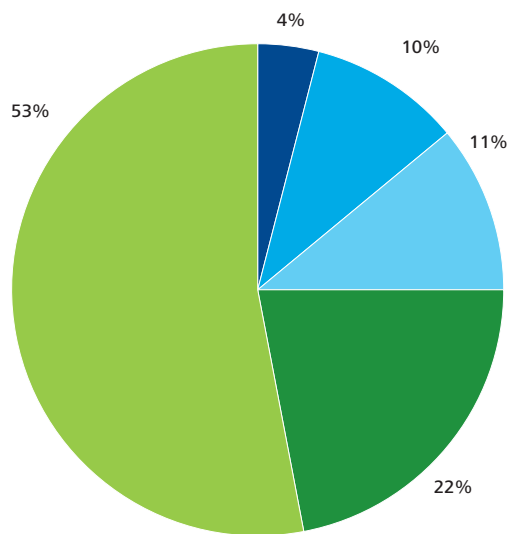
How would you describe the coverage of the role you work in?



How long have you worked in the water sector (or did you work, if retired)?

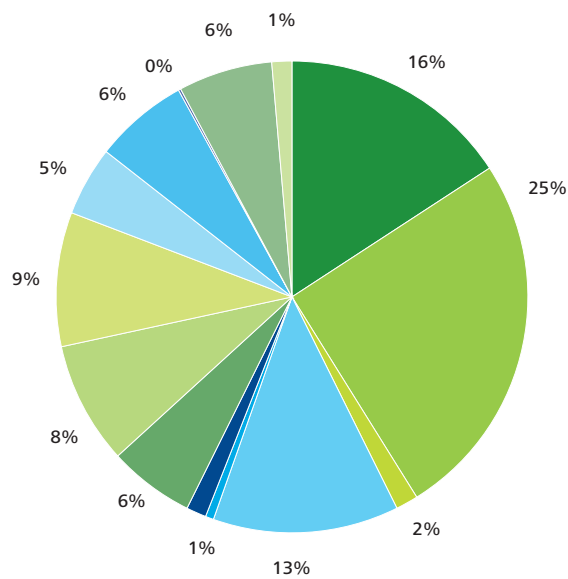


How long do you expect to remain in the industry?



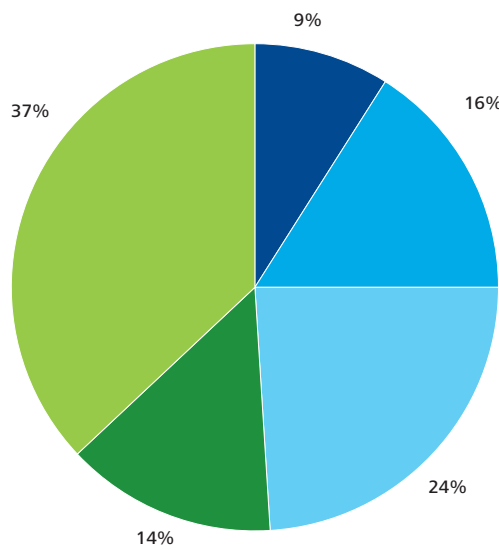
<1 year	47	4%
1-3 years	119	10%
3-5 years	135	11%
5-10 years	276	22%
10+ years	663	53%
Total	1,240	100%

Which category best describes your current role (or former role, if retired)



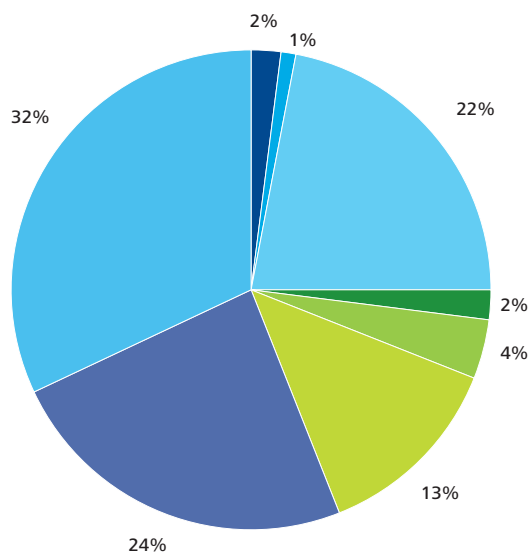
Consultant	196	16%
Engineer	314	25%
Finance	19	2%
General management	158	13%
Human resources	7	1%
Information technology	17	1%
Marketing/Sales/Communications	73	6%
Operations/maintenance	104	8%
Other (please specify)	114	9%
Planning	59	5%
Policy analysis/regulatory oversight	80	6%
Purchasing	2	0%
Scientific/technical researcher	80	6%
Student	17	1%
Total	1240	100%

Which category best describes the size of organisation for which you work (or worked, if retired)



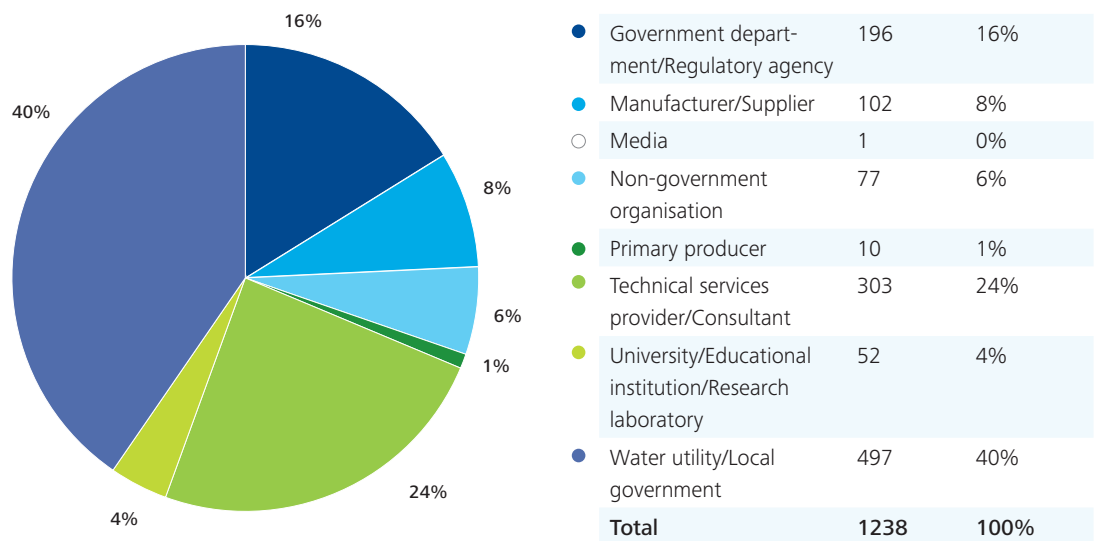
Less than 10 employees	112	9%
10-100 employees	193	16%
101-500 employees	298	24%
501-1000 employees	177	14%
1000+ employees	462	37%
Total	1,242	100%

Which category best describes your level within your organisation (or your level before retirement)?



Board member	31	2%
Contractor	13	1%
Middle management	268	22%
Not applicable	24	2%
Owner/Operator	44	4%
Senior executive	162	13%
Team leader/Supervisor/Manager	300	24%
Team member/Front line employee	397	32%
Total	1,239	100%

Which category best describes the type of organisation in which you are employed (or were employed, if retired)?



Appendix B

The following point is relevant to the interpretation of the data shown in this report:

For all questions 'don't know' responses are shown alongside responses provided by those who felt able to answer a question. On occasion the 'don't knows' represent a significant percentage of the responses provided. Readers may be interested in recalculating the data represented to remove the 'don't knows' in these instances. This would produce an enhanced picture of the opinions of those people who felt able to express a view.

Demographics

What is your gender?	<ul style="list-style-type: none"> • Male 	<ul style="list-style-type: none"> • Female.
Which state/territory do you live in??	<ul style="list-style-type: none"> • ACT • New South Wales • Northern Territory • Queensland 	<ul style="list-style-type: none"> • South Australia • Tasmania • Victoria • Western Australia.
What is your postcode?		
How would you describe the coverage of the role you work in?	<ul style="list-style-type: none"> • National (I work across all jurisdictions) • Major city/urban 	<ul style="list-style-type: none"> • Regional centre (population of more than 5,000 people) • Rural/Small Community.
How long have you worked in the water sector (or did you work, if / retired)?	<ul style="list-style-type: none"> • <1 year • 3-5 years 	<ul style="list-style-type: none"> • 5-10 years • 10+ years.
How long do you expect to remain in the industry?	<ul style="list-style-type: none"> • <1 year • 1-3 years • 3-5 years 	<ul style="list-style-type: none"> • 5-10 years • 10+ years.
Which category best describes your current role (or former if / retired)?	<ul style="list-style-type: none"> • Consultant • Engineer • Finance • General management • Human resources • Information technology • Marketing/Sales/Communications 	<ul style="list-style-type: none"> • Operations/maintenance • Other (please specify) • Planning • Policy analysis/Regulatory oversight • Purchasing • Scientific/Technical researcher • Student.
Which category best describes the size of organisation for which / you work (or worked, if retired)?	<ul style="list-style-type: none"> • Less than 10 employees • 10-100 employees • 101-500 employees 	<ul style="list-style-type: none"> • 501-1000 employees • 1000+ employees.
Which category best describes your level within your organisation / (or your level before retirement)?	<ul style="list-style-type: none"> • Board member • Contractor • Middle management • Not applicable 	<ul style="list-style-type: none"> • Owner/Operator • Senior executive • Team leader/Supervisor/Manager • Team member/Front line employee.
Which category best describes the type of organisation in which you / are employed (or were employed, if retired)?	<ul style="list-style-type: none"> • Government department/Regulatory agency • Manufacturer/Supplier • Media • Non-government organisation 	<ul style="list-style-type: none"> • Primary producer • Technical services provider/Consultant • University/Educational institution/Research laboratory • Water utility/Local government.

Current State of Play

How would you describe the current overall state of the water / sector across Australia (urban and rural)?	<ul style="list-style-type: none"> • Very sound • Quite sound • Not very sound • Not at all sound • Not sure/Don't know. 	
Which three issues do you think are the most important for the / water sector - now and in five years' time?	<ul style="list-style-type: none"> • Ensuring sewage is effectively treated & disposed of • Improving the functioning of water markets • Responding to community concern over rising prices • Mitigating extreme weather event impacts • Ensuring water supplies are secure • Reducing the skill shortage in the water sector • Improving the way in which water sector institutions are governed • Including carbon costs into the evaluation of operations/ supply options • Setting prices at levels that fully cover costs • Maintaining & augmenting infrastructure • Reducing the long-term environmental impact of the sector • Managing catchments effectively • Water management with emerging industries: eg. agribusiness, tourism and unconventional gas • Improving operational efficiency. 	
What do you see as the greatest challenge for R&D in the water / sector?	<ul style="list-style-type: none"> • Limited financial resources • Limited human resources • Diversified and complex R&D environment 	<ul style="list-style-type: none"> • Lack of prioritisation of key issues that need R&D focus • Complex IP environment.
Do you think there are opportunities for more public private / partnerships in the water sector?	<ul style="list-style-type: none"> • Yes • No. 	
When you think of skills shortages in the water sector, what is the/ main issue?	<ul style="list-style-type: none"> • Capacity development (the right competencies) • Leadership and culture 	<ul style="list-style-type: none"> • Recruitment and retention • Other.
To what extent should water conservation and efficiency programs be curtailed during wetter periods?	<ul style="list-style-type: none"> • Significantly • Moderately • Marginally 	<ul style="list-style-type: none"> • Not at all • Don't know.

How well do you think the following issues are currently being / addressed in your state/territory?	<ul style="list-style-type: none"> • Ensuring sewage is effectively treated & disposed of • Improving the functioning of water markets • Responding to community concern over rising prices • Mitigating extreme weather event impacts • Ensuring water supplies are secure • Reducing the skill shortage in the water sector • Improving the way in which water sector institutions are governed • Including carbon costs into the evaluation of operations/ supply options 	<ul style="list-style-type: none"> • Setting prices at levels that fully cover costs • Reducing the long-term environmental impact of the sector • Managing catchments effectively • Customer value • Improving operational efficiency • Water management with emerging industries: e.g. agribusiness, tourism and unconventional gas • Other.
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Climate Change

How much of a risk is climate change to the sustainable management / of water?	<ul style="list-style-type: none"> • Significant • Moderate • Minor 	<ul style="list-style-type: none"> • Don't know • No risk.
How well is the water sector in your state/territory responding to / climate change impacts?	<ul style="list-style-type: none"> • Very well • Quite well • Not very well 	<ul style="list-style-type: none"> • Not at all well • Don't know.
Should desalination have a role in providing water security in your region?	<ul style="list-style-type: none"> • Yes, as a core supply source • Yes, as a back-up source of supply • No. 	
What three things should the water sector focus on to address / impacts related to climate change?	<ul style="list-style-type: none"> • Ensure systems can withstand extreme weather/events (e.g. fire or flood) • Align water prices to scarcity • Diversify sources of water supply • Repair infrastructure to reduce water loss 	<ul style="list-style-type: none"> • Curb demand through education • Ensure asset management strategies account for longer term changes • Other (please specify).

Water Supply

What are the three most important things that could be done to meet / the water supply requirements of rural/agricultural users?	<ul style="list-style-type: none"> • Repair irrigation infrastructure • Encourage expansion of agriculture in areas with more secure water supplies • Improve the functioning of water markets • Increase storage capacity (either groundwater or surface waters) 	<ul style="list-style-type: none"> • Finalise Catchment Water Plans as required under the National Water Initiative • Facilitate transition to more water efficient or higher value crops • Reduce water available for the environment • Other (please specify).
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What are the three most important things that could be done to meet / the water supply requirements of urban users?	<ul style="list-style-type: none"> • Curb demand for water through education • Encourage or require the installation of rainwater tanks • Access supplies from innovative sources (e.g. recycling, stormwater) • Access additional water from existing sources (e.g. raise dam levels, pump more groundwater) 	<ul style="list-style-type: none"> • Raise the price of water to reflect its scarcity • Allow greater rural/urban water trades • Subsidise water efficient appliances • Other (please specify).
What are the three most important things that could be done to meet / the water requirements of the environment?	<ul style="list-style-type: none"> • Improve the efficiency of consumptive uses (e.g. repair/upgrade irrigation systems) • Improve environmental watering regimes • Ensure that the environment's high-security entitlements are respected • Increase government buyback of water, to provide more water for the environment 	<ul style="list-style-type: none"> • Invest more in research to understand the environment's water needs, particularly critical environmental assets • Reduce allocation/entitlements for consumptive use • Other (please specify).
What is the most cost-effective way of providing additional water / to the environment?	<ul style="list-style-type: none"> • Water buybacks • Mostly water buybacks, some infrastructure investment • Mostly infrastructure investment, some water buybacks • Infrastructure investment 	<ul style="list-style-type: none"> • None of the above, no additional water should be provided to the environment • Don't know.
To what extent should water conservation and efficiency programs be / curtailed during wetter periods?	<ul style="list-style-type: none"> • Significantly • Moderately • Marginally 	<ul style="list-style-type: none"> • Not at all • Don't know.
How beneficial is it to charge higher urban water prices in times / of water scarcity rather than imposing restrictions?	<ul style="list-style-type: none"> • Very • Quite • Not very 	<ul style="list-style-type: none"> • Not at all • Don't know.
How secure are current water supplies in the region in which you live?	<ul style="list-style-type: none"> • Very • Quite • Not very 	<ul style="list-style-type: none"> • Not at all • Don't know.

Recycled water [series of statements with agree/disagree options]	<ul style="list-style-type: none"> • Water recycling can provide a sustainable source of non-potable water for municipal and industrial use • “Purple pipe” dual reticulation water recycling systems can provide a sustainable source of non-potable water to households • Recycled water can be treated and managed to a level that is sufficient for safe potable supply 	<ul style="list-style-type: none"> • Potable water recycling can provide an environmentally sustainable water supply augmentation in some circumstances • Water Recycling can provide a cost-effective source of potable water for Australian cities • Direct potable water recycling should be investigated as a potential future water supply strategy in Australia.
Urban stormwater [series of statements with agree/disagree options]	<ul style="list-style-type: none"> • Urban stormwater can provide a sustainable source of non-potable water for municipal and industrial use • Urban stormwater can be treated and managed to a level that is sufficient for safe potable supply 	<ul style="list-style-type: none"> • Urban stormwater can provide environmentally sustainable potable water supply augmentation in some circumstances • Urban stormwater can provide a cost-effective source of potable water for Australian cities.
To what extent should water conservation and efficiency programs be / curtailed during wetter periods?	<ul style="list-style-type: none"> • Significantly • Moderately • Marginally 	<ul style="list-style-type: none"> • Not at all • Don’t know.
Desalinated seawater [series of statements with agree/disagree options]	<ul style="list-style-type: none"> • Desalinated seawater can be treated and managed to a level that is sufficient for safe and reliable potable supply • Seawater desalination can provide an environmentally sustainable source of potable water for Australian cities 	<ul style="list-style-type: none"> • Seawater desalination can provide a cost-effective source of potable water for Australian cities.
Dams [series of statements with agree/disagree options]	<ul style="list-style-type: none"> • Dams are an effective way to manage water security where I live • There is scope for more dams to provide additional water supplies • We should have more big dams in the North of Australia (e.g. North-West WA, NT, Far North QLD) 	<ul style="list-style-type: none"> • We should have more big dams in the south of Australia (e.g. in the Murray-Darling basin and the SE coastal areas).
How much of a risk is unconventional gas extraction to the overall / management of ground and surface water?	<ul style="list-style-type: none"> • Significant • Moderate • Minor 	<ul style="list-style-type: none"> • No risk • Don’t know.

On which aspect of water management do you think unconventional gas / extraction may have the most impact?	<ul style="list-style-type: none"> • Surface water quality • Groundwater quality • Land degradation • Management of wastewaters • Increased use of surface or ground waters in the extraction process 	<ul style="list-style-type: none"> • Increased GHG emissions • None, there are no aspects of water management impacted by unconventional gas extraction • Don't know.
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Water Reform and Economics Regulation

What should be the top three priorities for reform in the water / sector in your state/territory?	<ul style="list-style-type: none"> • Clarifying governance of the sector (e.g. the role & objectives of utilities, regulators, etc) • Ensuring the financial viability of utilities • Ensuring the independence of utilities • Improving water trading • Reducing utilities' debt levels • Increasing operational efficiency of water services 	<ul style="list-style-type: none"> • Reducing system costs • Increasing competition in the sector • Completing Water Plans for each catchment • Investing in asset maintenance, upgrades and augmentation • Improving the delivery of water to the environment • Improving the level of cost-recovery in water pricing • Other (please specify) • Don't know.
How effective is the economic regulation of water in your / state/territory?	<ul style="list-style-type: none"> • Very • Quite • Not very 	<ul style="list-style-type: none"> • Not at all • Don't know.
Economic regulators should:	<ul style="list-style-type: none"> • Determine the prices charged by utilities • Periodically review the prices charged to ensure that monopoly power is not abused 	<ul style="list-style-type: none"> • Do nothing and leave the market to determine prices • Do nothing and leave governments to determine prices • No opinion/don't know.
In your state/region is economic regulators operate with levels of / political intervention that...	<ul style="list-style-type: none"> • Significantly compromise independence • Slightly compromise independence • Do not compromise independence 	<ul style="list-style-type: none"> • There is no economic regulator • Don't know.
Who is best placed to decide when water supplies should be / augmented?	<ul style="list-style-type: none"> • Government ministers • Water retailers/distributors • Relevant government departments • Bulkwater suppliers 	<ul style="list-style-type: none"> • Private sector water providers, which should be free to enter the market for bulkwater services whenever it is profitable to do so • Don't know.

Water Markets and Pricing

Over the past 12 months, has the functioning of water markets in / your state/territory...	<ul style="list-style-type: none"> • Improved significantly • Improved moderately • Stayed approximately the same 	<ul style="list-style-type: none"> • Deteriorated moderately • Deteriorated significantly • Don't know.
What would most improve the functioning of water markets in your / state/territory?	<ul style="list-style-type: none"> • More timely information about water trades • Removal of restrictions on trades • Faster administrative approval for trades 	<ul style="list-style-type: none"> • Better information about water availability • Better information about the ownership of water entitlements • Other (please specify) • Don't know.
Governments have imposed bans and limitations on the trade of water / from some catchments. To what extent are these bans and limitations / beneficial?	<ul style="list-style-type: none"> • Very • Quite • Not very 	<ul style="list-style-type: none"> • Not at all • Don't know.
Is the price of urban water in your state/territory...	<ul style="list-style-type: none"> • Much too high • A little too high • About right 	<ul style="list-style-type: none"> • A little too low • Much too low • Don't know.

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Jonathan McKeown is the Chief Executive of the Australian Water Association, a role he commenced at the end of May 2013. Prior to his appointment to AWA Jonathan was based in Asia for 7 years heading up a management consulting business that specialized in productivity improvements, strategic planning, and investment. Jonathan commenced his career as a commercial lawyer with Mallesons solicitors in Melbourne, before transferring into business, gaining 25 years of commercial experience in establishing and consolidating businesses across Asia and the Middle East.

Jonathan has advised more than 200 companies in developing business in Asia whilst managing offices in Bangkok, Jakarta, Tokyo, and Amsterdam. His international project management skills have been acquired through significant development projects (including water projects) across Asia and The Middle East. His management experience in industry associations has been acquired in roles that include Director of Trade Business Services at the Chamber of Manufactures (now known as Australian Business Chamber) and Chief Executive of the NSW Farmers Association.

Jonathan graduated from the Australian National University with combined Arts/ Law degrees in 1983.



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